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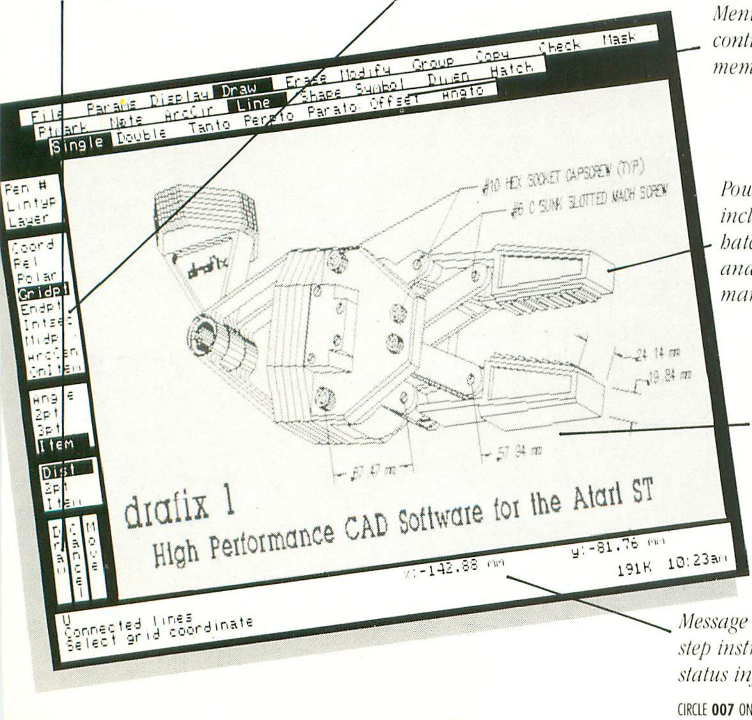
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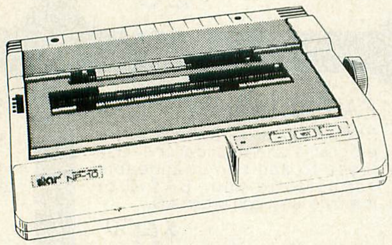
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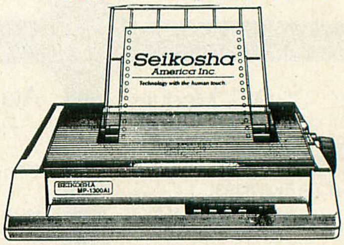
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SIXTH ANNUAL SHOPPERS GUIDE/35



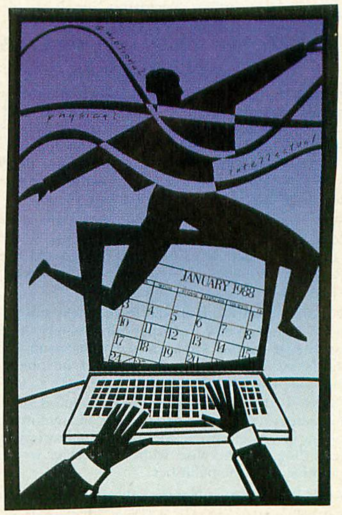
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Editorial submissions should include text and program listings on disk and paper. Submissions will be returned if stamped, self-addressed mailer is supplied. **Antic** assumes no responsibility for unsolicited editorial material.

I/O Board

COVOX AND PCS

While reading about PCS (**Antic**, October 1987), I recognized Patrick McShane's name and CAMLU. In the fall of 1986 I enlisted the help of Covox's Kevin Gevatosky to help me over some programming hurdles. I was trying to control our Omnibot 2000 robot strictly by voice commands, using the Covox VoiceMaster and an Atari 800 with a homemade robot interface. Gevatosky was most generous with his time.

McShane's CAMLU project was indeed responsible for some changes in the Covox software and he deserves a lot of praise for his creative approach to computer education. And Covox should get credit for unusually responsive customer support for its product.

Jack Mindy
East Amherst, NY

ANTIC WRITER FIX

I was fuming over the problems with Antic Writer (July 1987)—printer timeouts and having to use a FIX XL translator disk on my 800XL—until I discovered a fix! I am in fact writing this letter with Antic Writer, and it will print without the translator disk.

Bob Hardy
Chico, CA

*Bob Hardy's program was optimized by **Antic** Technical Editor Charles Jackson.*—ANTIC ED

```
ND 10 REM ANTIC WRITER FIX
ZF 11 REM (Disk filename= D:AWRITFIX.BAS
   )
LS 20 REM BY BOB HARDY & CHARLES JACKSON
SJ 30 DIM A$(7018):AD=ADR(A$):HI=INT(AD/2
   56):LO=AD-HI*256:CLOSE #1
QO 40 OPEN #1,12,0,"D:ANTICWTR.EXE":POKE
   850,7:POKE 852,LO:POKE 853,HI
LS 50 POKE 856,105:POKE 857,27:? "READING
    FILE"
RE 60 J=USR(ADR("hhh■LV■"),16):GET #1,A:I
   F A<>80 THEN ? "BAD FILE!":END
MQ 70 PUT #1,58:? "FIXING FILE"
QO 80 CLOSE #1:? "CLOSING FILE":END
```

COACHWARE FOUND

In the October, 1987 I/O Board, football coach Jerry Culver asked for help finding software to draw play diagrams with his Atari 800XL for saving to disk and printing. Suncom's Animation Station graphics tablet and software (*Reviewed in **Antic**, November 1987.*—ANTIC ED) does this job, as well as many other specialized tasks.

Judi Jacobsen
Suncom Sales Manager

PCS SCHOOL FOLLOW-UP

The students and staff of PCS School for Advanced Learning would like to thank you for your wonderful article, *Maverick Atari School* (**Antic**, October 1987).

We received over 80 calls about our program from all over the United States. As a direct result of your article and subsequent calls, we're currently signing licensing agreements to set up PCS Schools in other cities and states. In fact, we've already opened a second school in Boise.

Because of the article, the Nampa enrollment jumped to 85 students, and the new school also doubled enrollment. B. Dalton bookstore, which normally carries five issues of **Antic** each month, has sold over 125 copies in Nampa alone. And I understand that Boise sellers have done as well.

Before I even received my copy, I got a call from a total stranger who had read about our "drooling over having a hard drive" for our 1040ST. He said he liked what he'd read and sent us an Atari 20Mb drive. This is nothing short of a miracle.

Also, we plan to manufacture the MCU (Motor Control Unit) for home and school use. It's affordable and foolproof, and software is included. This is remarkable when you realize that it's designed completely by kids.

The time is right and our nation is ripe to see this type of facility available everywhere. If it weren't for your article, these developments couldn't be possible. I am forever in debt to **Antic** magazine.

Patrick McShane
Headmaster
PCS School
1020 W. Finch Drive
Nampa, ID 83651
(208) 465-5443

CASSETTE A-ROGUE

Cassette Owners: Here's all it takes to get *A-Rogue* (**Antic**, May 1987) working perfectly on your tape. Just change the "D:" to "C:" in the following lines: 110, 1600, 1612, 1615 and 1650 in Listing 1 and line 70 in Listing 2. Also be sure that you use different cassettes for the program, the character set, and any games you save.

Alfredo Cartagena
Moreno Valley, CA

I/O Board

IT'S POSSIBLE

I had to write and say how impressed I was with *Graphics Impossible* (**Antic**, October 1987). Nearly two years ago I attempted something similar. I tried to get more colors on the vertical level, but I couldn't get the DMA timing right. There's still a problem when changing something at the far right side of the screen, though—but, for example, take the listing GRAPHDEM.BAS, and add these lines:

```
HE 8 REM Filename = GRIMP.LST
WG 9 REM (Merge this file with GRAPHDEM.B
   AS (Oct. 87)
MC 60 DATA 133,203,234,234,234,234,234,23
   4,234,234,234,234,234,234,234,140
BI 70 DATA 27,208,202,208,218,141,10
YK 100 FOR I=1536 TO 1596:READ J
```

This adds nine more NOPs, making the Graphics mode change farther to the right of the screen. Instead of having a "clean" mode change, there are jagged lines at that point.

I look forward to more **Antic** exchange programs from England's *Page 6* magazine.

Steven Lee
Sacramento, CA

SOFSEL HARTECH PRICES

In two recent New Products descriptions, **Antic** printed wrong prices for products we saw at the June 1987 Consumer Electronics show.

Hartech's (October 1987) Atari-look pocket calculators actually sell for $5.95. The correct price of the DMP 2000 printing model is $24.95 and the databank DB 2100 is $21.

The right prices of Star Soft games from TDC (November 1987) are: Pirates of the Barbary Coast, $24.95; Aliants, $29.95; Sprong and Space Lobster, $14.95 each; Disk 50, $19.95.

Antic welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.

Super Disk Bonus

Antic SuperCopy

Effortless multi-file disk copying

program by BRYAN SCHAPPEL & BARRY KOLBE

This month's Super Disk-Only Bonus is one of the fastest and easiest multi-file disk copying programs ever published for the 8-bit Atari. Antic SuperCopy is entirely operated from menu selections and normally requires only five key presses.

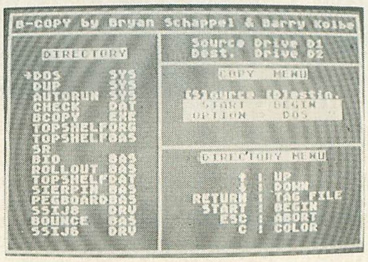
When you are copying a lot of the files on a disk, Antic SuperCopy puts an end to tedious searching for correct wildcard filenames. This powerful program is written entirely in machine language. If Antic had printed it as a type-in BASIC loader, the listing would have consisted of approximately six pages of nothing but data statements.

Antic SuperCopy runs on all 8-bit Atari computers with at least 48K memory and a disk drive. This program was written by the Wisconsin team that created *Antic Spelling Checker*, our October 1987 machine language Super Disk Bonus.

RUNNING SUPERCOPY

The Antic SuperCopy program (BCOPY.EXE) and the instructions (HELP.BAS) are both on this month's Antic Disk. Choose selection 5 on the Main Menu of Side B. Included in the manual is an explanation of how you can make an Antic SuperCopy disk which loads and runs automatically.

Your January 1988 Antic Disk—featuring Antic SuperCopy as well as every program in this issue—will be shipped to you within 24 hours after receiving your order. Just phone Toll-Free to the Antic Disk Desk at (800) 234-7001. The monthly disk is only $5.95 (plus $2 for shipping and handling) on your Visa or MasterCard. Or mail a



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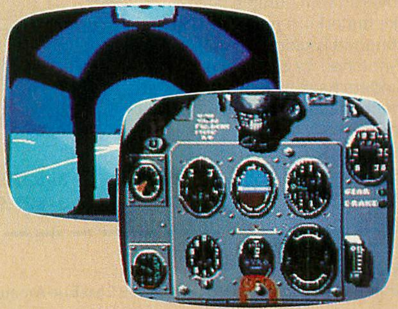
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TopShelf is an outstanding all-around database program that offers many powerful features and is easy to use. You can load TopShelf data files into your word processor and print good-looking reports. The BASIC program works on 8-bit Atari computers with at least 48K memory and a disk drive.

TopShelf is an easy-to-use, menu-operated database program with many high-powered features. TopShelf sorts your data any way you like, saves your files on disk and retrieves them—even does arithmetic calculations. You can load TopShelf files into your word processor and format them for classy printouts, or you can print unformatted TopShelf reports direct from the program.

Databases are among the most popular types of software. An airline timetable is a good model for how a database is set up. Everything you need to know about the arriving and departing flights is neatly arranged in a table. Along the top of the table, the up/down columns are labeled "Flight Number," "Departure Time," "Arrival Time" and so on.

Each sideways row in the table is the entire *record* of a specific flight. Each up/down column is a *field* (category) of information used in all the flight records.

Most airline schedules are arranged alphabetically by the destination of the flight. For example, flights to Aspen are listed before flights to Washington. We can say that this database's records are *sorted* on the *destination field.*

Electronic databases are programs which can search, arrange and report information on any field. An electronic database of different airline schedules would let you search through every airline's flights to a specific city, sort them according to airfare, and find you the cheapest flight.

GETTING STARTED

Now you can easily create your own database files with TopShelf. Type in Listing 1, TOPSHELF.BAS, check it with TYPO II and SAVE a copy before you RUN it.

If you have trouble typing the special characters in lines 5040-5060 and 5071, don't type them in. Listing 2 will

create them for you. Type Listing 2, check it with TYPO II and SAVE a copy to disk. When you RUN Listing 2, it creates these hard-to-type lines and stores them in a disk file called D:LINES.LST.

To merge the two programs, LOAD "D:TOPSHELF.BAS" then ENTER "D:LINES.LST". Finally, remember to SAVE the completed program before you RUN it.

USING TOPSHELF

When you RUN TopShelf, it displays a white screen with a gray menu bar at the top. This is the first of two menu screens. Press [M] to see the second screen, press the [ESC] key to return to the first.

First, get a sheet of paper and write a brief outline for your database. Draw four columns on your paper and label them FILENAME, DESC, SIZE and DISK #. These represent the four fields we'll use.

RUN the TopShelf program. When the first menu bar appears, type [M] to access the second menu. Now press [C] to [C]reate a new data file.

The words NO, TITLE, LENGTH, TYPE(C/N/F/S) and DEC should now be displayed at the top of the screen. These will help you design each field in the database.

The TITLE of the first field on our paper database outline is FILENAME. Type FILENAME and press [RETURN]. The cursor will appear beneath the word LENGTH. Since Atari filenames cannot be longer than twelve characters, type a 12 in this column and then press [RETURN].

The cursor will appear beneath the letters TYPE(C/N/F/S). This lets you define the type of information to be kept in the field. [C] gives you [C]haracter text data and [N] stands for [N]umeric data. (Later in this article we'll explain the other choices, [F] for [F]unction and [S] for [S]tatement.)

Since filenames are strings of characters, type [C] and press [RETURN]. Since the DECimal column is only used with numeric data, the cursor returns to the TITLE column. The FILENAME field is complete.

The second field on our paper database is called DESC. It will be a one-word DESCription of the file you are indexing—BASIC, text, picture, etc. The TITLE for this field will be DESC. We'll arbitrarily assign it a LENGTH value of 8. Since DESC is a character field, enter a [C] in the TYPE category.

The third field on our paper, SIZE, is the size of the file in sectors. Type the word SIZE in the TITLE column, and press [RETURN]. Next, fill in the value for the LENGTH column. Since you're not likely to come across a file larger than 999 sectors, you'll only need three places to hold your SIZE values. Type 3 and press [RETURN].

Since the SIZE field will only hold numbers, it is a *numeric* field. Type an [N] in the TYPE column and press [RETURN]. This time, the cursor moves to the DECimal column.

DEC lets you specify the number of decimal places you'll use in arithmetic calculations. For example, if you're dealing with dollars and cents you'd type 2. This would

continued on page 12

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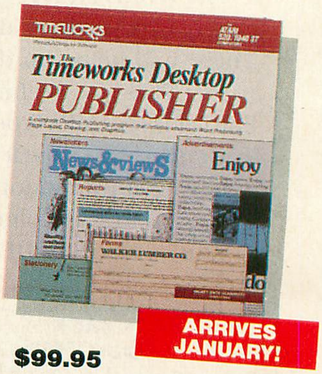
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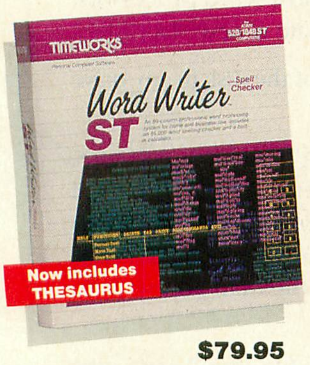
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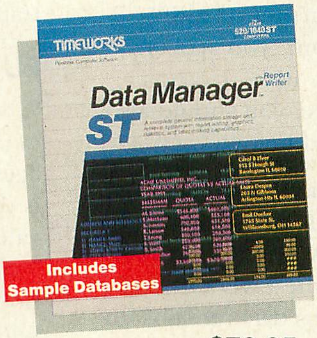
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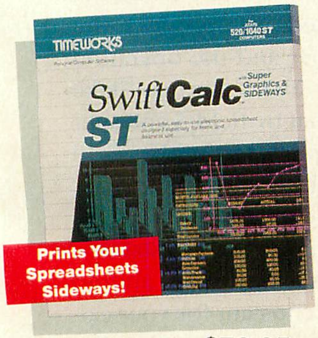


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TOP SHELF
continued from page 9

actually add *three* spaces to your SIZE value—two number spaces plus a third for the decimal point. Since our sector counts will always be integers, type [0] in the DEC column and press [RETURN].

Our final field will hold the disk identification number, titled DISK #. If you number your disks the same way as you number your checks, you'd have fewer than 10,000 disks and you'd type 4 for LENGTH. Since this is a numeric field, type [N] in the TYPE column, then type the number of decimal places in the DEC column.

We've created our four fields. At this point, the cursor is on line 5 of the TITLE column. Press [RETURN] to go back to the main menu.

ENTERING DATA

Adding data to the database is as easy as completing a form. From the main menu, type [A] to add data. Field by field, the program will prompt you to type the data. Using the above example, the program would prompt you for a FILENAME, the DESC (file description), the SIZE and the DISK #. Remember to SAVE your data file regularly!

You can also use the [C]reate option to change the fields of an existing database. For example, you could use this command to change the name of your SIZE field to COUNT or AMT. But be cautious: If you press the [SPACEBAR] twice while in the TITLE column, you will *erase* the entire field and every field below it!

Before your database grows too large, you should also practice using the functions described below.

VIEW lets you look through data which has been sorted on the field of your choice. When data is on display, another menu appears. Pressing the [SPACEBAR] shows either the next matching data item or the END OF DATA statement and the Main Menu. Previous data remains on the screen. To clear the screen, press the [ESC] key.

BROWSE shows your records one at a time—from either the beginning, middle or end of a file.

ADD lets you put a new data item into your file.

SAVE will store your file on disk. But don't type the "D: before the filename; the program does this automatically.

LOAD retrieves data files that have been previously saved to disk.

MORE displays the second part of the main menu.

To EXIT the program, you could press the [RESET] key. But this way is so much more dignified.

SECOND MENU

The second menu screen contains the following options:

SORT, which sorts your data on whichever field you select.

FIND searches the database for matching data. For an exact match, you must use quotes at the beginning and end of the search string. When the data has been found, another menu appears asking if you want to DISPLAY, PRINT or SAVE it.

The PRINT selection transfers unformatted data to virtually any printer. The SAVE choice lets you store the data on disk in either of two ways. You can save it as a standard ASCII text file—for use with most word processors. Or you can save it as data and create a new data file.

You can display the DIRECTORY of the disk in any drive you select.

On several menu selections you'll see +:-:RETURN ENTERS. This means that if you press [+], the next field is displayed on the top of the screen and the bar moves down one. Pressing [-] moves the bar up one field. Pressing [RETURN] indicates that this is the field you want to use.

When you VIEW or BROWSE the file, you'll see a new menu whenever data appears. This is for corrections. You advance one at a time with + or—and using the [SPACEBAR] to continue within the field you selected. Pressing [ESC] from any blinking cursor clears the screen and returns you to the main menu. Pressing [CONTROL] [P] transfers the data on the screen to the printer.

FUNCTIONS, STATEMENTS

Sometimes the value of one field is based on the values of previous fields. A database which computes grade averages is a good example of this. In this case, the final grade is determined by a function (formula) which uses grade values from previous fields.

The [F] key lets you do simple mathematical [F]unctions on one or more fields. This only works on numbers within fields. And the data must have been entered before the math function was selected. You program the function by typing the field number and the operation to be performed. For example, 1+2*3-4 means, "Take field 1, add it to field 2, multiply that by field 3 and subtract field 4 from the total." You must start with a field number and end with a field number. To program your function, you've got 20 bytes for each field.

Also, TopShelf [F]unctions cannot use any constants—such as a 7% sales tax. But there is a way to get around this limitation. If you need to use a constant for your calculations, select the field type as [S]tatement. This lets you to enter anything you want in that field, be it a number or a comment. Your entry will be displayed automatically whenever you add data to the file. If it's a number, you can have a function calculate it just like any other data. Otherwise, the [S]tatement will be treated as a comment.■

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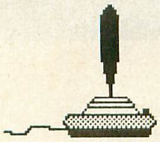
*Lester Block lives in Massapequa, NY and this is his first publication in **Antic**. He has been programming for three years on his Atari 800.*

Listing on page 68

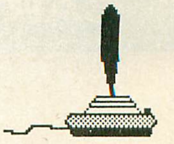
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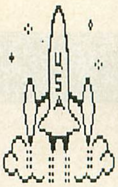


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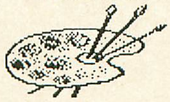


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CIRCLE 006 ON READER SERVICE CARD

Game of the Month

by ROBERT "RASSILON" PATTON

Rassilon's Triple-Header

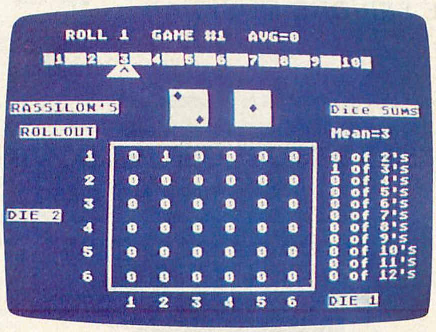
Three shorter games that pack plenty of punch

January's Game of the Month is actually *three* entertaining shorter games by Rassilon (Robert Patton). Pegboard, Rollout and Bounce work with Atari 8-bit computers of any memory size, disk or cassette.

Get ready to have some fun with a fascinating variety of Atari game challenges. There are three separate programs: Listing 1 is ROLLOUT.BAS, Listing 2 is PEGBOARD.BAS and Listing 3 is BOUNCE.BAS. Type in the listings as three individual files, checking each one with TYPO II. Be sure to SAVE copies of the three listings before you RUN them.

1. ROLLOUT

In this Yahtzee-like game, your goal is to remove numbers between 1 and 10 from the bar, according to the roll of two dice. You can remove numbers *matching* the numbers on one or both of the dice. Or you can remove any combination of numbers that adds up to the *sum* of both dice.



For young children, Rollout is a useful counting and adding drill. For grown-up players, the screen display offers an interesting window into the operations of your Atari's random number generator.

Plug your joystick into port 1 and you are ready to play Rollout. Press the joystick button to roll the dice, then select numbers to remove from the bar. Pushing the joystick sideways moves the selection marker. After each dice roll, the selection marker automatically moves under the bar

continued on next page

(The author of Taxman*—**Antic**, April 1986—Robert "Rassilon" Patton specializes in short, clean game programs that deliver plenty of playing enjoyment from comparatively brief, easy-to-type listings.*—ANTIC ED)

number that's equal to the dice *sum.* At the ends of the bar, the marker wraps around. (If the dice sum is 11 or 12, the marker stays under 10).

Entering 0 at the prompt, "How many games do you wish to play?" will END the program. After you play the number of games you selected—up to 10—you will be returned to the starting prompt.

LAWS OF CHANCE

A lot of information displayed on the screen is not really necessary for playing Rollout. But those continuously updated probability statistics should help you take advantage of the odds when you make playing decisions, as well as being an interesting demonstration of the laws of chance in action.

The top line of the screen tracks the number of rolls, games, and the average number of rolls per game. The next line is the bar containing the numbers to be removed with the joystick-controlled marker underneath.

In the middle of the screen, the dice rolls are totalled in a grid format. The chart tells you how often, for instance, the dice have come up 1-6, 2-4, etc. On the lower right side of the screen you'll see running dice totals—how often the dice have added up to numbers between 2 and 12. The mean value of the rolls is also displayed.

After several games the display may become jumbled as it tries to display large numbers in these areas. Just restart the program, which sets the these variables back to zero.

HINTS

As explained previously, you can choose to remove a combination of numbers that adds up to the sum of both dice. For example, if you roll a 4-3 you could remove the 4 and 3, the 5 and 2, the 6 and 1, or the 7.

Suppose you have only the 8 and 3 left and you roll a 3-5. You can remove the 3—or the 8. Then you must position the marker under a blank spot on the bar and press the fire button to continue. The 5 will remain on the bar.

When removing two numbers at once, the numbers won't disappear from the bar until *both* numbers have been selected.If your selection is wrong, the program ignores your request. But to reroll the dice, you must clear your request by moving back onto the *wrong* selection, pressing the joystick button, moving to a blank spot and pressing the joystick button again to roll the dice.

Remove the big numbers as soon as possible. Sometimes it's best to pass on removing the 1, 2 or 3. Keep track of available combinations, not just numbers remaining. Kids will get more out of the addition practice if you concentrate on teaching the different possible combinations of each dice roll.

2. PEGBOARD

Pegboard is a type of Peg Solitaire, where you must remove pegs from the board by jumping them. There are

many variations of this simple jumping boardgame, but we'll play the one called Center to Center.

Pressing the joystick button selects a peg, and the stick itself moves the peg/cursor around the board. A peg can be removed only by jumping an adjacent peg horizontally or vertically to a vacant space on the other side of the target peg. No diagonal jumps are allowed.

When you see the game screen, move the stick in any direction to start playing. This will remove the center peg. The best possible win is to remove all but one peg. And if you are really Mensa material, this last peg will wind up in the center hole.



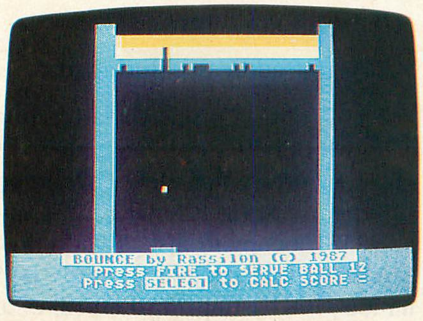
Once you select a peg to move, press the joystick button. The peg will turn blue and a bell will sound. Now move the peg/cursor to the vacant space you wish to jump to and press the trigger again. If you change your mind, put the cursor over the same peg you selected and press the button. After you make all possible jumps, press [HELP] for your score. To restart the game anytime, just press the [SELECT] key.

Your score depends on the number of pegs remaining on the board when you can't jump anymore. Three or four leftover pegs is average, two is excellent, and one gets you a genius rating. If multiple jumps are counted as one move, it's possible to get the last peg in the center hole within 18 moves. And if you succeed at this, apply for Mensa membership immediately.

3. BOUNCE

Breakout is one of Atari's classic action games, and I have attempted to re-create it in Atari BASIC with Bounce. One useful difference is that Bounce uses the joystick instead of paddles.

When the game screen appears, press the joystick button to serve the first of 25 balls. As usual, keep the ball in play for as long as possible. When the ball hits a brick, the brick disappears. The deflection angle is determined by where the ball hits your joystick cursor. The object is to knock out all the bricks with the least number of balls.



The scoring routine is not part of the main loop, so press [SELECT] for an update.

Bounce uses a number of programming techniques to increase the speed of execution. One simple technique is to use variables whenever possible. Lines 290-300 assign variables to all numbers used in the main execution loop, lines 30-130. Other techniques include modular program design, simple and concise program lines, PLOT and LOCATE commands and placing the most heavily-used lines at the beginning of the program.

HELPFUL HINTS

Line 110 lets you move twice as fast as the ball when you hold down the joystick button. However, this tends to lead to the ball being served without pausing the action—a prime reason to start with 25 balls.

Getting the ball "inside" the wall is the best way to cause the greatest amount of damage, because the ball will keep knocking out bricks while bouncing off the wall at the top of the screen—it won't hurtle back toward your cursor until it finds some space to squeeze through. With a little practice, you should be removing the wall very quickly. It's possible to do so with only one ball. ■

Robert Patton is an industrial engineer for the U. S. Postal Service. He recently transferred to the New York suburbs from Natchez, Missisipi. As Rassilon—a name from the Dr. Who TV series—he is active on CompuServe and will usually respond to electronic mail sent to 70057,674.

Listing on page 66

Mighty Mailer Address Book

More uses for your Atari mailing labels

by BOB KLEMENC

Now *Antic's* popular September, 1987 mailing-list program can be expanded to make complete address books with this brief, inventive enhancement. The BASIC program runs on all 8-bit Atari computers of any memory size. A disk drive and the original *Mighty Mailer* program are required.

I was looking for an easy-to-use address book program, and when I saw *Mighty Mailer* (**Antic**, September 1987) I was delighted. I realized that I could convert this mailing list processor into a full-featured address book by making just a few minor modifications to Dr. Philip Bate's program.

My 8-bit Atari now prints complete address books which I can effortlessly update. And each entry can hold as much information as I want.

My program changes don't affect any of the powerful mailing-list features of the original program. But now you can also use *Mighty Mailer* for valuable address book data such as telephone numbers, comments, or extra keywords to sort on. Printing of a line in your address list can be turned on or off—just begin that line with an "at" sign (@). These marked lines work somewhat like REM comments in a program listing.

I added a third printing option to Mighty Mailer. The choices now are:

A—Print addressee on letter

E—Print envelopes

T—Print addressee and @ data

The T option prints the additional data. The original A and E options have been altered to stop printing the current entry when they encounter a @.

Type in Listing 1, MAILER.LST, check it with TYPO II and LIST a copy to disk. To add this modification to the *Mighty Mailer* program, simply LOAD the original September, 1987 listing, MAILLIST.BAS, and ENTER your new MAILER.LST file. Finally, SAVE a copy of the combined program before you RUN it. ■

Bob Klemenc of Cleveland Heights, Ohio sent this short, powerful patch to the the I/O Board. Listing on page 67

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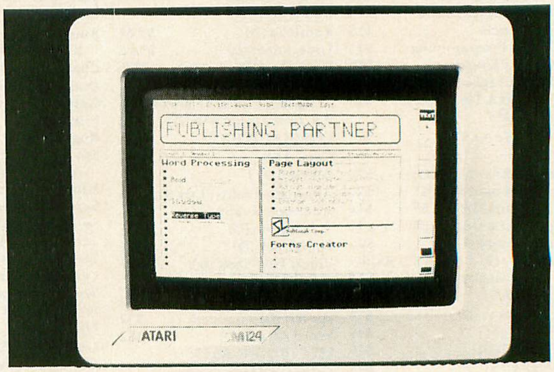
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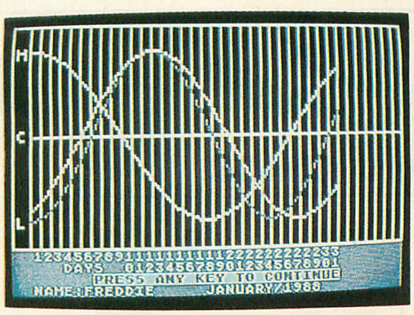
CIRCLE 065 ON READER SERVICE CARD

BASIC *Biorhythms*

Check out your energy cycles

by TOM BOHMBACH

BASIC Biorhythms prints or displays charts of your up-and-down psycho-physical cycles. It also checks your cycle compatibility with that special someone. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.



Haven't you had days when life seemed just a pleasant walk in the park, days when you absolutely knew for a fact that you could handle anything the world threw at you? But on the other hand, how about when you're having "one of those days" and you stumble through life afflicted by physical, emotional and intellectual butterfingers?

Such changes in coordination, mood and awareness might not be mere quirks of fate, they may result from "biorhythms" — natural cycles that supposedly occur throughout the lifetime of every human being.

There are three ongoing cycles starting at birth—physical, emotional and intellectual. Each cycle lasts a different number of days and is mathematically a plotted sine wave. The most significant points of a cycle are the beginning and the middle. These are "critical days" when the cycle changes from the plus or discharge phase (high) to the minus or recharge phase (low), and vice versa.

BASIC Biorhythms doesn't merely display your own cycles on the screen. It can also calculate your biorhythmic compatibility with that special someone. And it prints out

continued on next page



your graphs on any printer—even daisy-wheel models.

Admittedly, many people believe that biorhythms are as unscientific as astrology or spirit channeling. But now, 8-bit Atari users can try out biorhythm analysis for themselves, simply by typing in a BASIC program.

THE PROGRAM

Type in Listing 1, BIO.BAS, check it with TYPO II and SAVE a copy before you RUN it. BASIC Biorhythms first asks whether you want [B]iorhythms (which will display your graphs) or the [C]ompatibility Profile between two people.

When prompted for your name, type it in and press [RETURN]. When BASIC Biorhythms asks for your birthdate,enter it in the form MM,DD,YYYY and press [RETURN]. You are then asked which month and year you'd like plotted.Enter it in the form MM,YYYY and press[RETURN]. BASIC Biorhythms only accepts years between 1900 and 2100 A.D. (*That's because the program computes on the more accurate 365.25-day Julian Year Calendar. See* Micro Julius, ***Antic**, June 1986.*—ANTIC ED)

The biorhythm cycles are then displayed on the screen. If you are looking at a color TV or monitor, the blue curve represents the physical cycle, red represents the emotional and green represents the intellectual. These are the generally accepted biorhythm colors.

Critical days are when one or more of the curves crosses the center line. When two graphs cross in one day, it's double-critical. And when all three curves cross the center line, it's the dreaded triple-critical day.

After you have seen all you want, press a key and the program will display a menu. From here you can [G]o ahead one month at a time, [S]ee another month, [E]nter another birthday, [U]se the compatibility profile, or [Q]uit.

You can also [P]rint out that month's graphs on virtually any printer—even a daisywheel. The chart is created from patterns of different letters and symbols. You can trace the curves with different colored markers to make the finished chart easier to read.

COMPATIBILITY

To use the Compatibility Profile option, just enter the names and birthdates of two people. The computer will calculate three percentages—one for each cycle. A low percentage means that the two persons' cycles are out of sync. They might need to give each other an unusually large amount of understanding. A high percentage means that the pair's cycles are in step with each other and the couple will tend to experience highs and lows at the same time. ■

*Thomas Bohmbach Jr. is a high school student from North St. Paul, Minnesota. He has been a self-taught programmer for four years and he hopes Biorhythms "will be his first of many programs published in **Antic**."*

Listing on page 73

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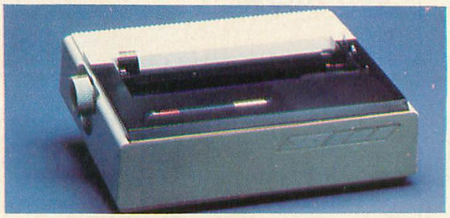
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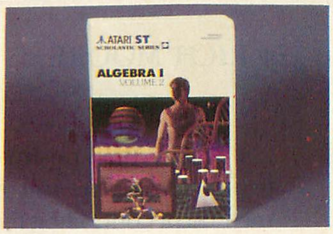
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CIRCLE **004** ON READER SERVICE CARD

SSI Joystick Commander

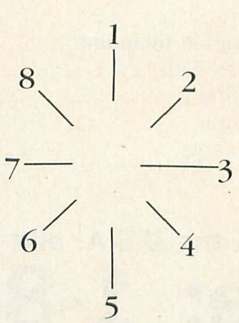
More fun for wargamers

by RICH MOORE

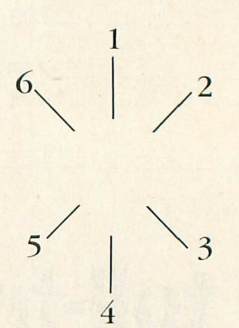
Wargamers can now get more fun and playing ease out of their sessions with the hits from Strategic Simulations Inc. With these short routines from SSI Joystick Commander you'll bypass the awkward number-key cursor movement schemes built into most SSI games. This BASIC program works on 8-bit Atari computers with at least 48K memory and a disk drive.

I have written positive reviews of quite a few SSI wargames for **Antic**. But many of these use an awkward method of controlling the screen cursor with number keys. SSI actually has two schemes, one for squares (an eight-direction cursor) and one for hexagons, or hexes (a six-direction cursor). When displayed on a diagram, they seem logical:

8-Direction



6-Direction



Unfortunately, the typewriter-style row of numbers on the keyboard of an 8-bit Atari is arranged a little differently:

1 2 3 4 5 6 7 8 9 0

Notice that the keys which move the cursor to the right

With the joystick to drive the cursor, I don't need a "compass rose"

are all to the *left* of those which move it left.

Some—not all—SSI games helpfully display a "compass rose" onscreen. For those that don't, I made a little "overlay" that sits above the number keys on my 130XE to label the directions in which they will move the cursor. Neither aid is really satisfactory.

A better solution would be to add a driver that loads the appropriate key code into the Atari's internal hardware register (memory location 764) whenever joystick 1 is moved. And finally I got around to doing just that, with SSI Joystick Commander.

The code for drivers to handle either squares or hexes is fairly simple. The routine doesn't even have to be hooked into the initialization vector, since SSI games tend to reboot if [RESET] is pressed.

The driver links itself into the Deferred Vertical Blank portion of normal operating system processing. Then it waits for a joystick movement. It looks up the corresponding internal key code in a short table and places the code into location 764, just as if a key had been pressed.

My biggest problem was finding a "safe" memory location for the driver. While XL/XE users can use a translator to get safe RAM above the normal 48K point, I wanted to find a place that would work on the older 800 models as well. Experimentation showed that there was no part of "normal" memory untouched by any of my SSI games. However, it turns out that the games that would benefit from a joystick driver all use Atari DOS 2.0S.

ABOUT DOS

A DOS (disk operating system) is a machine language program which loads into your Atari's memory whenever you boot a disk and remains in memory until you turn off your Atari. Its primary purpose is to tell your Atari *how* to communicate with your disk drive. (Note that the "DOS" *command* loads the DUP.SYS program which lets you manipulate disk files.)

Since all of these games use the same DOS, I chose to put my driver there. Since there aren't too many free memory locations in DOS, I decided to deactivate the RENAME function and use its space for the driver. None of the games use the RENAME function, so this modification would not harm game play.

A smaller problem was that the cursor tended to move a little too quickly under joystick control, particularly in the Gettysburg and Antietam games. At first it was hard to make the cursor move just a single square, especially diagonally, so I added a "debounce" delay.

Also, to verify that the player indeed selected a diagonal with the eight-direction driver, the program was modified to ignore cardinal directions (North, South, East, West) when the joystick button is pressed. And it ignores diagonal movement when the trigger is not pressed. This should help overcome the great variation in directional sensitivity among different joysticks.

Since games such as Warship and Battlecruiser don't require precise control of the cursor, you can remove this feature when you create the driver. Simply RUN SSIJOY8.BAS and type 'Y' at the "Ignore Trigger?" prompt. The resulting driver will move the cursor in any direction, regardless of trigger status.

The six-direction driver does not require pressing the joystick button for diagonal movement since the horizontal directions are not used at all, thereby providing comfortable "stops."

GETTING STARTED

Listings 1 and 2 create customized .DRV files for eight-direction and six-direction cursor drivers, respectively. Type in Listing 1, SSIJOY8.BAS, check it with TYPO II and SAVE a copy before you RUN it. Now follow the same procedure for Listing 2, SSIJOY6.BAS.

Listings 3 and 4 contain the MAC/65 source code for the two drivers, for students of assembly language. You don't need to type these in to use the program.

Both SSIJOY6.BAS and SSIJOY8.BAS will create joystick drivers with any specified delay rate. Just type in the rate you want at the "Delay Value" prompt, or press [RETURN] to use a default delay rate of 3.

Increasing the delay values in the drivers will make the cursor slower but more precise . Decreasing the delay values has the opposite effect.

Warship and Battlecruiser work best with the trigger disabled and a delay of 0. You may find values of 4 to 6 better for War in Russia.

You can test your driver now, but make sure you're using DOS 2.0. Use the "Binary Load" feature (choice L from the DOS menu) to load either of the .DRV files. Now plug a joystick into port 1. As you move the stick, numbers corresponding to the SSI direction codes should appear on the screen just as if you had pressed the number keys.

Caution: You can't rename a file with the driver installed. If you load the driver into memory, you must reboot to restore the RENAME function. [RESET] disables the driver, but you still can't rename files—which you'll need to do for installing the driver on a gaming disk.

SAFEST PROCEDURE

If you're the very cautious type, here's a procedure for installing the driver without writing to your original copy-protected SSI disk. It is a little complicated and requires an extra disk for each game. continued on next page

Using the number keys to determine direction can be a pain

1. Using DOS 2.0 with BASIC enabled, check the directory of your game disk. If you don't get a "normal" directory listing, the game isn't compatible with DOS 2.0 and you can't go any further.

2. Copy the game disk with a sector copier that won't quit when it encounters bad or non-existent sectors. Your backup won't run the game, but that's not what you need at this point.

3. Delete the AUTORUN.SYS file from the backup.

4. If the backup disk doesn't have DUP.SYS, file, use choice O from the DOS menu Move (or choice C to Copy) DUP.SYS from DOS 2.0 to the backup. Don't use anything but the standard Atari DUP.SYS from DOS 2.0. If there's not enough room on the disk for DUP.SYS, delete any large file except DOS.SYS. All we need is the game disk's DOS.SYS, a standard DUP.SYS file and the driver file RENAMed to AUTORUN.SYS.

5. Put a write-protect tab on the backup disk and label it as the boot disk for that particular game.

SSI has modified DOS for some of its games, which is why we can't just boot from a DOS 2.0 disk and make the driver an AUTORUN.SYS file. It's easiest to just get the DOS for each game using the preceding steps.

If you don't have a good sector copier, there's a trickier (and less reliable) method to get the particular DOS used by the game. Boot the game, but with BASIC enabled. DOS actually loads in first, then "stumbles" slightly when it looks for AUTORUN.SYS in the directory. Listen carefully to the loading sounds on your TV/monitor's speaker. When you hear the load stumble, press [RESET] to interrupt DOS and enter BASIC. Replace the game disk with an empty, DOS-formatted disk and write DOS to it by typing:

```
OPEN #1,8,0,"D1:DOS.SYS":CLOSE #1
```

Then proceed with steps 4-5 above.

Loading the game now takes two steps: one to boot the correct DOS and load the driver, the second to run the game on the original disk:

A. Boot the backup disk, disabling BASIC. When the DUP menu comes up, replace the boot disk with the game disk.

B. Select option L to load the game's AUTORUN.SYS file.

DARING METHOD

For the stronger at heart, the driver can be placed directly onto your copy-protected SSI disk for a fully automatic boot, load and run. No software is modified, but it is necessary to change a couple of file names and to add the one-sector driver to the disk.

If you use this method, the author and Antic Publishing are not responsible for any possible damages to your SSI disks. However, I have had no problems using the convenient procedure below for the following copy-protected disks:

Warship	Reforger 88
Battlecruiser	Mech Brigade
U.S.A.A.F	War in Russia
Gettysburg	Objective: Kursk
Battle of Antietam	

1. Using DOS 2.0 with BASIC enabled, check your game disk directory. If you don't get a "normal" directory listing, the game isn't compatible with DOS 2.0 and you can't go any further.

2. Copy your driver file to your game disk. (If your disk is write-protected, you may have to cut a notch in it.)

3. On the game disk, use choice E from the DOS menu to rename DUP.SYS as DUPSYS.OBJ. (Skip this step if DUP.SYS isn't there.)

4. Rename the AUTORUN.SYS file to DUP.SYS. This step is *essential.*

5. Move (choice O) or Copy (choice C) the driver to the game disk.

6. Rename the driver on the game disk to AUTORUN.SYS.

7. Place a write-protect tab over the notch you cut during step 2. You can now reboot and play the game using a joystick to control the cursor.

This procedure takes advantage of the fact that DOS will actually load and execute *two* files on the disk when BASIC is disabled. DOS first looks for and loads a file named AUTORUN.SYS. If a cartridge (external or internal) is not there, DOS then searches for a program file named DUP.SYS to run.

With the joystick to drive the cursor, I no longer need an artificial "compass rose" in order to look over the battlefield or to command unit movements. Large-scale cursor moves are both faster and easier, and the entire games are more enjoyable. ■

Lt. Commander Rich Moore is a wargame simulation expert for the U.S. Navy. He is currently in charge of developing the database for a large-scale U.S./Korean joint arms exercise scheduled for 1988.

Listing on page 71



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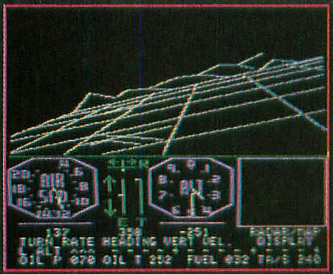
1986 - Flight Simulator II for the 68000 computers



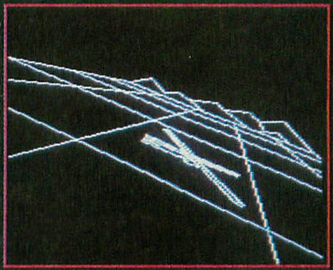
1985 - High-performance Jet flight simulator for the IBM, Commodore 64, and Apple II computers



1982/1983 - Microsoft Flight Simulator & Flight Simulator II



1979 - 3D graphics applied to the original FS1 Flight Simulator for the new Apple II and TRS-80 computers



1977 - SubLOGIC's 3D graphics package in BASIC and M6800 Assembly Language

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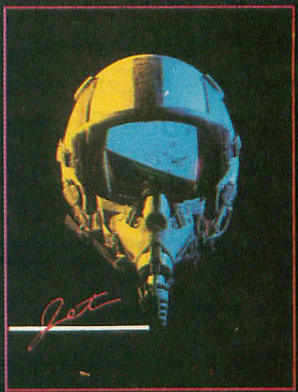
Some say our technology has helped us define the state of the art in flight simulation. We believe our ten years of dedication have gotten us where we are today.

SubLOGIC's first black & white 3D graphics routines, developed in 1977, paved the way for our introduction to flight simulation and aerial combat gaming theory. Our second-generation Flight Simulator II was so well conceived that even we find it difficult to improve upon. Jet's spectacular land and sea battle scenarios set another classic milestone in state-of-the-art simulation gaming. Scenery concepts incorporated into SubLOGIC flight simulation products right from the start continue to evolve as we introduce new, more beautifully detailed areas of the world to explore. And coming in 1988 - a flight control yoke for even more realism!

We invite you to help us celebrate our first decade of success, and share in our anticipation of the next ten years to come. SubLOGIC tenth-anniversary promotional shirts and posters are available at your dealer or directly from SubLOGIC. See your dealer, or write or call us for more information.

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Champaign IL 61820
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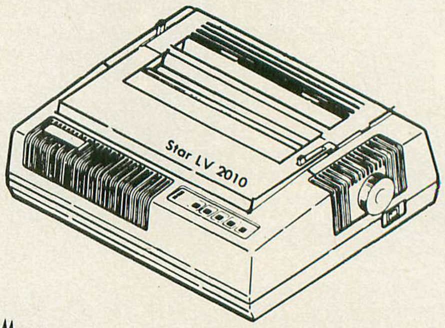
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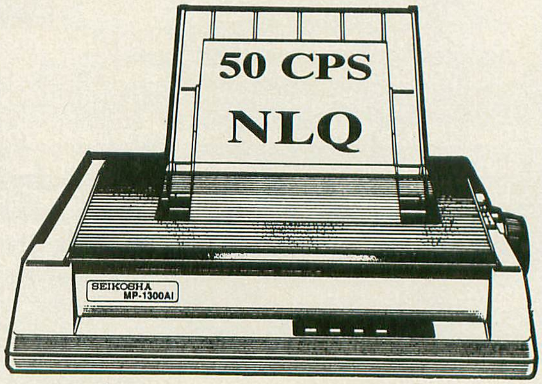
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DISK DRIVES

ATARI XF551

Atari's new **XF551** is a double-sided, double-density 5 1/4-inch disk drive that runs almost three times as fast as the reliable 1050 model which it replaces. The XF551 features a new DOS from Optimized Systems Software, but it also operates all previous Atari software. Atari is hustling to try to get out this powerful new disk drive in time for the holidays.

$199.95. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.
CIRCLE **100** ON READER SERVICE CARD

ASTRA ONE

Astra's The One ($275) is a double-sided, double-density drive with direct-drive motors. The **Astra 1001** ($225) disk drive is single-sided, double density, and the **2001** ($400) is a single-sided twin disk drive. The **Big D** ($475) is the double-sided version of the 2001. All prices are approximate.

Astra Systems, 2500 South Fairview, Unit L, Santa Ana, CA 92704. (714) 549-2141.
CIRCLE **101** ON READER SERVICE CARD



SUPRADRIVE HARD DISK

With 20 million bytes of data available virtually instantly at the touch of a key, the SupraDrive will dramatically change the way you use your computer. The first hard disk made for Atari 8-bit computers has proven itself a dependable performer and operates many Atari bulletin boards today. The SupraDrive stores the equivalent of more than 200 floppy disks.

$699. Supra Corp., 1133 Commercial Way, Albany, OR 97321. (503) 967-9075.
CIRCLE **102** ON READER SERVICE CARD

Sixth Annual Quality Products Shoppers Guide for your Atari — Antic 1988

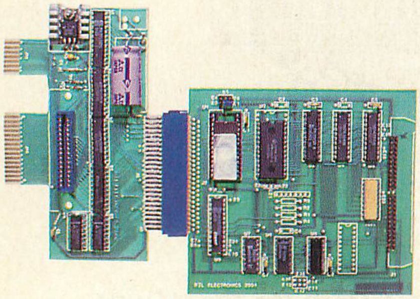
• The Sixth Annual Antic Shoppers Guide is this magazine's selection of over 100 best software and peripheral products currently available for *8-bit* Atari computers

• including the 130XE, 65XE, XE Game System, 800XL, 800, 600XL, 1200XL and 400.

For users of Atari ST computers, a complete ST Buyers Guide is featured in the current special issue of START: The ST Quarterly.

By GREGG PEARLMAN, Antic Assistant Editor

DISK DRIVES



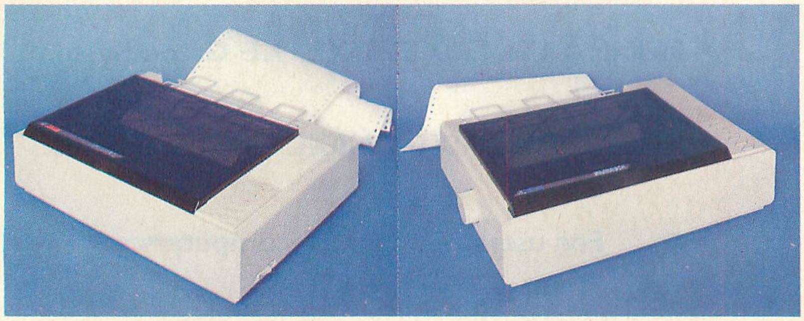
BTL HARD DISK

This system combines standard hard disk units with BTL's own customized Atari interfaces. The BTL 2001 (for 800XL) or 2002 (for 130XE) connects to the computer's parallel bus slot. The BTL 2004 Hard Disk Adapter attaches to a standard SASI hard disk controller—and supports one or two hard drives for a potential total of 128 megabytes of information storage. BTL packages complete hard disk systems up to 85Mb—which can be easily configured and upgraded. Or you can supply your own hard disk and just purchase the adapter and connector.

$550 (10Mb with MYDOS). William Lurie & Associates, P.O. Box 7546, Van Nuys, CA 91409. (818) 780-1723.

CIRCLE **103** ON READER SERVICE CARD

PRINTERS



ATARI XMM801 & SMM804

Atari's XMM801 and SMM804 dot-matrix printers offer many (but not all) of the features currently considered standard in the marketplace—and at unusually low street prices. In most respects, the printers are identical. The XMM801 has a serial interface that plugs directly into 8-bit Atari computers or their disk drives. The SMM804, with its parallel interface, is intended for direct hookup to STs, but it can be connected to 8-bit models via the Atari 850 Interface or ICD's P:R: Connection.

In fact, if you already own an interface and are considering buying an ST, the SMM804 will give you more speed and features than the XMM801. The XMM801 is compatible with Epson's medium-resolution graphics mode, 960 dots per line. The SMM804 supports as many as 1,280 dots per line.

$199.95 each. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.

CIRCLE **100** ON READER SERVICE CARD

STAR NL-10

The NL-10 is a direct descendant of the discontinued Gemini 10X and Star SG-10, and the current **NX-10** ($349). The NL-10 is compatible with the Epson FX-80. An outstanding near letter-quality font and an expanded set of control buttons on the top panel are major attractions of the fast, sturdy, easy-operating NL-10. This printer provides every standard feature at a most affordable price. The NL-10 requires a Star $60 interface cartridge.

$319 plus $60 parallel interface. Star Micronics, Inc., 200 Park Avenue, New York, NY 10166. (714) 768-7203.

CIRCLE **104** ON READER SERVICE CARD

ATARI XEP80

The long-awaited plug-in 80-column card is here at last, according to Atari. It boasts a razor-sharp text display, plugs into a joystick port and carries its own built-in Centronics parallel printer interface. It works with color monitors but is at its best with monochrome. The XEP80 produces bit-mapped graphics, international and graphics characters, inverse video or blinking text, underlining, double-high or double-wide text. Just keep in mind that it may be a little while before your favorite software is made compatible with this smart little 80-column box.

$79.95. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.

CIRCLE **100** ON READER SERVICE CARD

SPEECH/

COVOX VOICE MASTER

The Covox Voice Master digitally records and manipulates your own voice, storing the electronic signals in the memory of your Atari. Voice Master consists of a small white box, a telephone operator-type headset, connecting cables, a program disk and documentation.

Voice Master repeats what you said—in your own voice. It shows off its voice-recognition capabilities in a talking blackjack game. Say how much you want to bet, whether you'll hit or stand, and Voice Master will respond with the correct deal.

$89.95, 48K disk. Covox Inc., 675-D Conger Street, Eugene, OR 97402. (503) 342-1271.

CIRCLE **111** ON READER SERVICE CARD



ENHANCEMENTS

ICD ENHANCEMENTS

The **P:R: Connection** ($89.95) makes it easy to connect Atari 8-bits to standard printers and modems. This inexpensive replacement for Atari's discontinued 850 Interface provides one Centronics parallel port and two serial ports. It uses the same cables ($14.95 from ICD) as the Atari 850. Drawing power from your computer, it doesn't require its own outlet. There's a built-in R-handler with complete documentation for the RS-232 driver source listing.

If you just want to hook up your printer, ICD's **Printer Connection** ($59.95) contains a single parallel interface.

The most impressive add-on product for the 8-bit in years is ICD's **Multi I/O Board**. The Multi I/O plugs into the parallel bus at the back of your Atari 800XL, 65XE or 130XE (the XE requires a $19.95 adapter) and gives your computer 1Mb ($349.95) or 256K memory ($199.95) which can be partitioned into multiple RAMdisks and a printer spooler plus a hard disk interface that can support eight SASI and SCSI controllers at once, using standard 5 1/4-inch and/or 3 1/2-inch hard disk drives. You also get an 850-compatible parallel printer interface, a serial interface for modem or printer.

RAMBO XL ($39.95) is a 256K memory upgrade for the Atari 800XL and 1200XL. It sets up a 130XE-compatible 192K RAMdisk that runs current software such as the 130XE version of AtariWriter Plus on your XL. The 130XE version of PaperClip (Batteries Included) supports RAMBO's full 256K, loading the entire spelling checker into memory for rapid-fire operation.

ICD Inc., 1220 Rock Street, Rockford, IL 61101. (815) 968-2228 (Voice), (815) 968-2229 (BBS).
CIRCLE **106** ON READER SERVICE CARD

RAMCHARGER

Enhance your 8-bit computer's memory with RAMcharger RAMboards and get 256K to 1088K memory. Installation is simple and you can have an 800 with more memory than an ST. Just plug in the board and get 288K available with SynCalc and SynFile+, up to 8,000 sectors of RAMdisk. MYDOS software is included.

Atari 800: $149.95, 256K; $199.95, 512K; $299.95, 1Mb. 600/800/1200XL: $120, 256K. 130XE: $120, 320K; $180, 576K; $280, 1088K. Magna Systems, 147-05 Sandford Avenue, Suite 4E, Flushing, NY 11355. (718) 939-0908.
CIRCLE **107** ON READER SERVICE CARD

MICROFLYTE JOYSTICK

Instead of renting a real airplane for an hour, why not pick up the MicroFlyte ATC Joystick and take control of Sublogic's Flight Simulator II with a minimum of keystrokes? This self-centering analog joystick uses two potentiometers to recognize the direction and magnitude of a turn—it helps you fine-tune your flying. However, it works only with Flight Simulator II or the programs you write yourself.

$59.95. MicroCube Corp., P.O. Box 488, Leesburg, VA 22075. (703) 777-7157.
CIRCLE **109** ON READER SERVICE CARD

SOUND

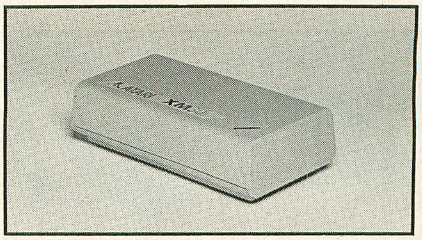


PARROT

Alpha's Parrot sound digitizer can play back almost anything, from birds singing to sirens blaring. The Sound Sampler hardware plugs into joystick port 2 and feeds the sound into the Atari. Parrot's mini-plug jack accepts sounds from microphones, tape recorders, radios, televisions, VCRs or compact disk players. Play mode turns your computer's keyboard into a synthesizer. Load sounds you've created, select the type of sound you want—horns, telephones, etc.,—and the top three keyboard rows give you three octaves of notes for each sound.

$39.95, 48K disk. Alpha Systems, 4435 Maplepark Road, Stow, OH 44224. (216) 374-7469.
CIRCLE **112** ON READER SERVICE CARD

MODEMS

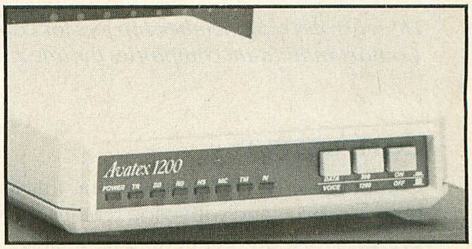


ATARI XM301 & SX212

The XM301 ($59.95) builds advanced features into an inexpensive 300 baud modem that plugs directly into your 8-bit Atari. This worthy successor to the Atari 1030 has auto-dial and auto-answer and doesn't need a separate power supply. Included in the package are a fine 49-page manual and XE-Term software.

Atari announced the SX212 ($99.95) some time ago, but it has not yet come to market. The SX212 is a speedy 1200 baud, Hayes-compatible modem that plugs directly into Atari 8-bits or daisy-chains with your peripherals. Comes complete with built-in speaker, signal lights and software.

32K disks. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.
CIRCLE **100** ON READER SERVICE CARD

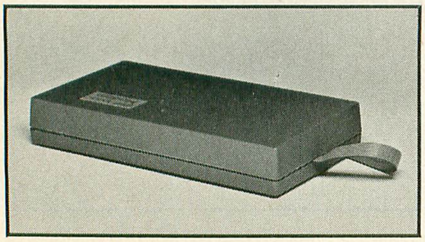


AVATEX 1200

The Avatex 1200 modem gives you inexpensive Hayes compatibility and reliable operation. It operates with a subset of the Hayes commands that gives you virtually all the important functions. The Avatex can often be found between $79 and $129 at dealers and is widely used in the Atari community. It requires an 850 or P:R: interface and can also be used with an ST.

$159. E+E Datacom, 1230 Oakmead Parkway #310, Sunnyvale, CA 94086. (408) 732-1181.
CIRCLE **113** ON READER SERVICE CARD

MODEMS



SUPRA 300/1200/2400

This fully Hayes-compatible modem is about half the size of the current Hayes 2400 baud modem. Featuring a speaker, two telephone ports and an LED display on the front, Supra's new multi-speed modem works with both the 850 interface and ICD's P:R: Connection. Supra's R-Verter cables convert the 8-bit Atari's SIO port to an RS-232 port.

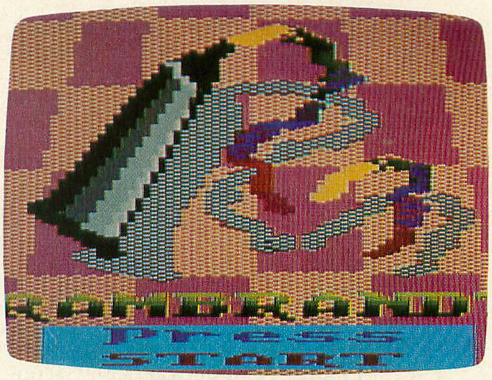
$199.95, including cables and software; $179.95 for the modem only. Supra Corp., 1133 Commercial Way, Albany, OR 97321. (503) 967-9075.
CIRCLE **102** ON READER SERVICE CARD

GRAPHICS

RAMBRANDT,

RAMbrandt paint software (AP0157) produces color images with KoalaPad or Atari Touch Tablet in five graphics modes and multiple text fonts. You can load pictures from Moviemaker, Micro Illustrator, Micro-Painter, Animation Station's Design Lab and Computereyes. The window mode lets you vertically or horizontally rotate, flip (for T-shirts), animate your picture, or scale it up or down in size. RAMbrandt has unlimited user-defined brushes, 130XE RAMdisk support and printer dumps for Epson, Star Micronics, C. Itoh, NEC and compatibles. Its Okimate 10 color printer dump produces fine color images.

$19.95 each, 48K disk. The Catalog, 544 Second Street, San Francisco, CA 94107. (800) 234-7001





COMPUTEREYES

Connect your Atari to any video camera or VCR and you'll get a digitized black-and-white image in less than six seconds. The image can then be modified with stan-

ONLINE SERVICES

Hourly rates and membership fees for commercial online services are subject to change. Contact individual companies for latest information. You'll need a modem to hook up.

COMPUSERVE

CompuServe is the leading online information service, and with good reason. You can get stock quotes, news and weather reports, make airline reservations, buy merchandise, play games, enter special interest groups (SIGs) on dozens of topics. CompuServe is where you'll find the ANTIC ONLINE edition and three bustling Atari SIGs (8-bit, 16-bit and Atari Developers) with hundreds of 8-bit and ST programs to download. Upload time is free. Hourly rates *anytime* are $6 for 300 baud, $12.50 for 1200 and 2400 baud. $39.95 sign-up fee.

500 Arlington Center, Box 20212, Columbus, OH 43220. (800) 848-8199. In Ohio, (614) 457-8600.
CIRCLE **114** ON READER SERVICE CARD

GENIE

GEnie, the General Electric Information Service, is the newest and least expensive online service, costing $5 an hour between 6 p.m. and 8 a.m. on weekdays, and all day on evenings and weekends, even for 1200 baud modems ($10 for 2400 baud). Prime-time rates are more business-oriented, $35 per hour for 300/1200 baud and $45 for 2400 baud. Upload time is free. The SIG-like Atari RoundTable software library has 11 categories and is growing fast.

GEnie, 401 N. Washington Street, Rockville, MD 20850. (800) 638-9636.
CIRCLE **115** ON READER SERVICE CARD

ATARI PLANETARIUM

Atari Planetarium shows you the stars tonight—or any night between 9999 B.C. and A.D. 9999—from anywhere on Earth. View any celestial event at up to 64 times normal speed, forwards or backwards, from the appearance of Halley's comet over Australia on April 5, 1986 to the earliest recorded solar eclipse.

$24.95, 64K disk. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.
CIRCLE **100** ON READER SERVICE CARD

RAINY DAY GAMES

Younger children will love the company of Ted Bear on Baudville's Rainy Day Games. Ted always plays fair and he shows little ones how to have fun playing such favorites as Concentration, Old Maid and Go Fish.

$29.95, 48K disk. Baudville, 5380 52nd Street, Grand Rapids, MI 49508. (616) 957-3036.
CIRCLE **130** ON READER SERVICE CARD

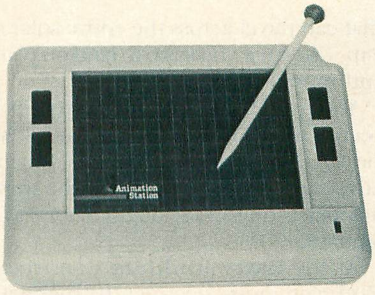
dard graphics software. The Computereyes package includes an interface module, software and an owner's manual. For $399.95, you also get a black-and-white video camera.

$129.95, 48K disk. Digital Vision, Inc., 66 Eastern Avenue, Dedham, MA 02026. (617) 329-5400.
CIRCLE **117** ON READER SERVICE CARD

DESKTOP PERFORMANCE STUDIO

With this long-awaited multimedia software, your 8-bit Atari becomes a live performance instrument and you instantly become a composer, artist, recording engineer and video animation director. Your movements of the graphics can control your music in real-time—or your changes of graphic music patterns can control the animation images. The software scrolls your words in sychronization too. A true software breakthrough.

$49.95, 48K disk. Virtusonics Corp., 123 Duke Ellington Blvd., New York, NY 10025. (212) 316-6945.
CIRCLE **118** ON READER SERVICE CARD



ANIMATION STATION

Packaged with **DesignLab** software (actually Baudville's Blazing Paddles), Suncom's Animation Station is a touch tablet that might be even easier to use than the discontinued KoalaPad. DesignLab loads and saves pictures in the popular 62-sector Micro-Painter format. The software's "shape tables" include buildings, animals, weapons and cars. These can be flipped or rotated and placed in your picture. You can print on graphics-capable Epson printers and compatibles plus Star/Gemini, Panasonic and Okimate printers.

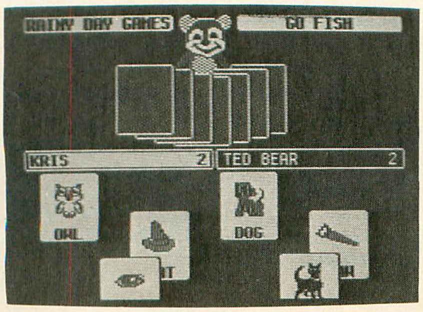
$89.95, 48K disk. Suncom, 260 Holbrook Drive, Wheeling, IL 60090. (312) 459-8000.
CIRCLE **119** ON READER SERVICE CARD

EDUCATION

TALK & TEACH

The Dorsett Talk & Teach interactive tutorials encompass about 800 lessons ranging from pre-school to adult level. The lessons involve languages, mathematics, self-development, science, technology and vocational study. The lessons are all cassette-based—two per tape—and full of sound and graphics.

$9.95 per cassette; eight cassettes, $59.96. Dorsett Educational Systems, Box 1226, Norman, OK 73070. (405) 288-2301.
CIRCLE **141** ON READER SERVICE CARD



TYPING TUTOR, WORD INVADER

Learn to use your keyboard quickly and properly, or just brush up on your typing skills. **Typing Tutor** evaluates your performance. Then play **Word Invader** to reinforce what you've learned. This two-in-one package comes on both disk and cassette.

$24.95, 48K disk; $21.95, 32K cassette. Academy software, P.O. Box 6277, Mill Valley, CA 94903. (415) 499-0850.
CIRCLE **142** ON READER SERVICE CARD

QUIZMASTER, USA CONSTRUCTION SET

Quiz anybody on any subject, from riddles to nuclear physics, with the **Quizmaster Construction Set**. Create your own multiple-choice quizzes with an unlimited number of questions. As the screen displays a question, a counter rapidly counts down from 500, and you get the number of points still left when you press the key for the right answer.

The **USA Construction Set** gives you a program disk, plus data disks containing questions for all of the states. The files can easily be edited and enlarged, so you'll have a constant variety of questions to be answered.

$9.95 each, 48K disk. EZuse Software, 2850 Enea Way, Antioch, CA 94509. (415) 754-6026.
CIRCLE **143** ON READER SERVICE CARD

LINKWORD LANGUAGES

The Linkword Languages series swiftly teaches you German, French, Italian and Spanish by using images that link foreign words to acoustically similar English words. Words are introduced one at a time, with the computer giving the English word, foreign equivalent, phonetic spelling and quick image to keep in mind for each. Linkword also teaches the beginning elements of grammar and topics such as dining out and going to the doctor. Vocabulary ranges from clothes and furniture to business and travel. The program comes with an audio cassette featuring a native speaker pronouncing the words you've just learned.

$24.95 each, 48K disk. Artworx Software Co., Inc., 1844 Penfield Road, Penfield, NY 14526. (800) 828-6573. (716) 385-6120 in New York.
CIRCLE **144** ON READER SERVICE CARD

MATH BLASTER!, WORD ATTACK!, SPELL IT!

Math Blaster!, for grades 1 through 6, contains more than 600 problems in ascending difficulty levels covering addition, subtraction, multiplication, division, fractions, decimals and percents. **Word Attack!** gives 4th-graders through 12th-graders 675 new words in 27 lists and various tests. Additional data disks are available for $19.95. **Spell It!** has 50 word lists covering 1,000 commonly misspelled words in five difficulty levels.

$49.95 each, 48K disk. Davidson & Associates, 3135 Kashiwa Street, Torrance, CA 90505. (800) 556-6141. (213) 534-4070 in California.
CIRCLE **145** ON READER SERVICE CARD

COMPUTE YOUR ROOTS

Compute Your Roots takes genealogical information from you, stores it on disk and prints it neatly in standard diagram formats called pedigree charts and family

EDUCATION

group sheets. Trace your family tree back to the source, with your Atari.

$34.95, 48K. Requires BASIC. Wasatch Genealogical Software, 2899 West 7550 South, West Jordan, UT 84084. (801) 483-3357.
CIRCLE **138** ON READER SERVICE CARD

THUNDER MOUNTAIN SOFTWARE

Whether your musical skills are limited or extensive, **Songwriter**, featuring unique, easy to use "piano roll" graphics and on-screen commands, will have you playing your own tune in 15 minutes—on your computer or home stereo.

Mission In Our Solar System puts you behind the controls of a spacecraft that can travel across the entire solar system. Use what you learn to land on planets and moons.

You're a Bizling whose spaceship has been damaged while visiting the Planet Simian. In **Run for the Money**, you must raise enough money to repair the ship by manufacturing and selling synannas to the Simians.

At the **Batty Builders** Construction Yard, you must construct the foundation walls for a new project, test the new conveyor system, catch the falling stones before they hit bottom, and build a wall with just the right pattern.

$9.95 each, 48K disks. Thunder Mountain, P.O. Box 1167, Northbrook, IL 60065-1167. (800) 221-9884.
CIRCLE **160** ON READER SERVICE CARD

COMMUNICATIONS

EXPRESS!

With **Backtalk** ($19.95, AP0154), your Atari can autodial other bulletin boards in the middle of the night and upload or download files in XMODEM or other standard formats. 130XE owners can save money on CompuServe with Backtalk's RAMdisk support. You have total modem compatibility and can create unlimited macro libraries.

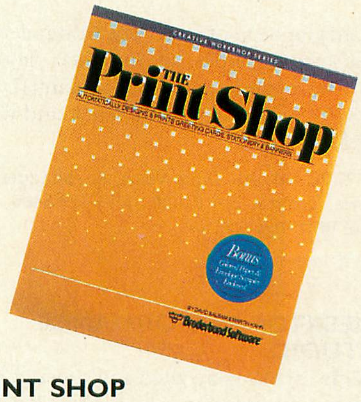
Express! is the first choice of Atari online users,according to an ANTIC ONLINE 1986 survey. Keith Ledbetter's telecommunications programs are perhaps the most sophisticated, user-friendly software ever put into public domain. ($10, 48K disk. PD0081 for 1030/XM301, PD0082 for 850 and ICD interfaces.)

The Catalog, 544 Second Street, San Francisco, CA 94107. (800) 234-7001.

BBS EXPRESS!

BBS Express! runs on the Atari 1030 and XM301 modems, supporting both XMODEM and ASCII downloading. Sysops can customize their bulletin boards with powerful features. BBS Express! uses all currently available memory upgrades, and full remote sysop capabilities can be accessed from anywhere in the world.

$39.95, 48K disk. (Specify 850 or 835/1030/XM301 version.) Orion Micro Systems, 2919 Ennismore Court, Richmond, VA 23224. (804) 794-9437.
CIRCLE **108** ON READER SERVICE CARD



PRINT SHOP

Design your own greeting cards, banners, letterheads, logos and more with Broderbund's versatile **Print Shop** ($44.95, 48K disk). You don't need computer graphics experience. Print Shop will guide you through the process. Design elements include eight typestyles, nine border designs, a graphics editor that lets you create original pictures, and the ability to superimpose text over any design.

Volumes I, II and III of the **Print Shop Library** ($24.95 each, 48K disk) are collections of graphics, ranging from Presidents to plumber's helpers, from chess pieces to choppers. These illustrations feed right into Print Shop.

The **Print Shop Companion** ($34.95, 64K disk) adds extra features to the basic program, such as calendars, enhanced borders, fonts, fill-in patterns and more powerful graphics editing.

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903. (415) 492-3200.

NO FRILLS GRAPHICS

No Frills disks ($19.95 each) are filled with a wide variety of icons, fonts and borders

LANGUAGES & TOOLS

BASIC XE, ACTION!

BASIC XE ($79, cartridge plus 48K disk) from OSS runs programs at least twice as fast as Atari BASIC. BASIC XE has powerful new statements, automated editing features and extra utilities. This language harnesses the full 128K memory of the 130XE computer.

The fast, powerful **ACTION!** programming language ($79, 16K cartridge) blends elements of Pascal and C, but is much easier to program on the 8-bit Atari. The ACTION! screen editor makes programming a joy and was the basis of Batteries Included's PaperClip word processor. Particularly outstanding for speedy graphics and game programs.

Optimized Systems Software, 1221B Kentwood Avenue, San Jose, CA, 95129. (408) 446-3099.
CIRCLE **146** ON READER SERVICE CARD

ADVAN BASIC

Never has a BASIC given the programmer such effortless command of the special sound and graphics capabilities of the Atari. Advan BASIC is a speedy compiled BASIC with powerful new commands and built-in Player/Missile graphics.

$39.95, 48K disk. Advan Language Designs, P.O. Box 159, Baldwin, KS 66006. (913) 594-3420.
CIRCLE **147** ON READER SERVICE CARD

PRINTING



for 64K Ataris running Print Shop Companion. The company also markets two disks of Judaic images and Hebrew letters, plus a $22.95 Christian symbols disk. A new addition to the line is four disks from the Jersey Atari Computer Society ($12.95 each).

No Frills Software, 800 East 23 Street, Kearney, NB 68847. (308) 234-2975, (308) 234-6250.
CIRCLE **148** ON READER SERVICE CARD

TYPESETTER, PAGE DESIGNER, RUBBER STAMP

Typesetter ($34.95), **Page Designer** ($29.95) and **Rubber Stamp** (29.95) are three related 48K disk programs. They combine into a flexible and powerful package which lets you mix graphics and text elements that you have created from scratch. The software goes beyond Print Shop in control of the printed page. Due to the array of powerful choices, this software can be somewhat challenging to learn.

XLEnt Software, P.O. Box 5228, Springfield, VA 22150. (703) 644-8881.
CIRCLE **131** ON READER SERVICE CARD

BASIC VIEW

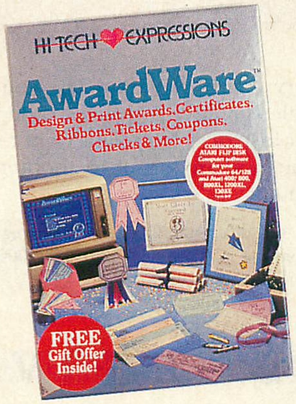
Lighten your debugging load with BASIC View, a machine language programming utility that traces BASIC programs as they run. As each line of your code is executed, the BASIC tracer highlights it in a screen window, enabling you to find bugs right away.

$19.95, 48K disk, AP0192. The Catalog, 544 Second Street, San Francisco, CA 94107. (800) 234-7001.

QUIK PIX

The two versions of Quik Pix merge Print Shop Library pictures into word processor pages from either PaperClip or from AtariWriter and AtariWriter Plus. (Actually you can merge *any* picture, if you convert it to Print Shop format first.) Pictures can be saved as "pix," letterhead, or as labels using the Mail Merge features of these word processors.

$29.95 each, 48K disk. White Lion Software, P.O. Box 357, Ridge, NY 11961. (516) 472-6657.
CIRCLE **150** ON READER SERVICE CARD



AWARDWARE

Design and print awards, licenses and certificates of recognition with **AwardWare** ($14.95, 48K disk). The software has 99 award templates sized 8×10 inches and 5×7 inches. You can print mock "checks," admission tickets, ribbons, plaques, trophies and "keys to the city." AwardWare also offers 20 borders, five fonts, 20 graphics and five seals.

With the other Hi-Tech products, **HeartWare** ($9.95), **Love Note Maker** ($14.95), **CardWare** ($9.95), **PartyWare** ($14.95) and **Ware With All** ($14.95), you can express yourself almost without limit.

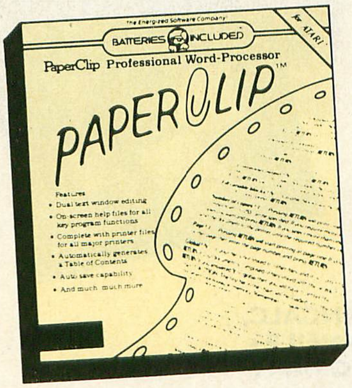
Hi Tech Expressions, 1700 Northwest 65th Avenue, Suite 9, Plantation, FL 33313. (800) 848-9273. In Florida, (305) 584-6386.
CIRCLE **151** ON READER SERVICE CARD

FORMS GENERATOR

Create customized purchase order forms, statements, invoices, proposals, job work orders, gift certificates. Forms Generator's scrolling spreadsheet-style WYSIWYG screen makes it easy design and print almost any form you need. Not only does Forms Generator create forms—it makes all calculations automatically. You can even save forms to disk and keep records with this program.

$23.95, 48K disk. Twenty-Fifth Century, Software Division, Dept. AT 1, 234 Fifth Avenue, New York, NY 10001. (800) 346-6000.
CIRCLE **153** ON READER SERVICE CARD

WORD PROCESSING



PAPERCLIP

We write and edit every word at **Antic** with PaperClip before transmitting the copy to our typesetter via modem. PaperClip is a professional-strength word processor that's easy to learn. Its features include a split screen with cut-and-paste between both windows, one-key macros, readable characters with true descenders, double-column printing, configuration files for many different printers and fine documentation. The 130XE version contains the SpellPack spelling checker.

$59.95, 48K disk. Batteries Included, distributed by Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171.
CIRCLE **121** ON READER SERVICE CARD

FIRST XLENT WORD PROCESSOR

Put pictures into the text, use the joystick for cursor movement, edit two documents at once with the First XLEnt Word Proces-

WORD PROCESSING

sor. This program boasts near-instantaneous search-and-replace and adjustable cursor or joystick speeds on XL/XE computers. There's also no problem loading First XLEnt files to other word processors. It comes with Atari DOS 2.5, but you can substitute your own DOS—meaning that you can use a high-speed DOS, custom RAMdisk, etc. First XLEnt has a visible, editable cut-and-paste buffer and true file insert—you can insert a disk file anywhere in your text without losing the end of your document. And you can save any portion of the document in memory to disk.

$29.95, 48K disk. XLEnt Software, P.O. Box 5228, Springfield, VA 22150. (703) 644-8881.

CIRCLE **131** ON READER SERVICE CARD

ATARIWRITER PLUS

A disk-based upgrade of the popular AtariWriter cartridge, AtariWriter Plus includes a spelling checker and mail merge. It takes advantage of the 130XE's full 128K memory. AtariWriter Plus lets you send your file directly to devices other than P:—for instance, you might want to send it to the modem port or to another Atari computer.



$49.95, 48K disk. Atari Corp., 1196 Borregas Avenue, Sunnyvale, CA 94086. (408) 745-2000.

CIRCLE **100** ON READER SERVICE CARD

MIDITRACK

The hardware/software system from Hybrid Arts is a professional MIDI sequencer that can control a bank of synthesizers. **MIDItrack II** ($194, XL/XE) uses your Atari to emulate a 16-track digital recorder with synchronizer and MIDI remote control. There's 16-track overdubbing, autolocate and optimizing. **MIDItrack III** (130XE only) is $187.

Hybrid Arts, 11928 W. Olympic Blvd., Los Angeles, CA 90064. (213) 826-3777.

CIRCLE **156** ON READER SERVICE CARD

GUITAR WIZARD

Master guitar chords and scales with this innovative program. Guitar Wizard is more than just a computerized chord-fingering book. It includes scale guides, alternate string tunings and guidance for improvisational playing. There are 32 chord types,

PRODUCTIVITY

CREATIVE PROCESS

Creative Process ($19.95, 48K disk, AP0151) is a tremendous aid in report writing, for business or school. This outline processor features pop-up menus and can help you manage projects, make sense out of long meetings, or monitor works in progress. Creative Process supports the 130XE RAMdisk.

The Catalog, 544 Second Street, San Francisco, CA 94107. (800) 234-7001.

TURBOBASE

The MicroMod TurboBase Integrated Business Application takes full advantage of the 1Mb RAMdisk capability of ICD's Multi I/O Board and speedy SpartaDOS 3.2. This program does the job for business owners seeking a central software system to handle all their financial and administrative data. TurboBase tracks customer and vendor addresses and phone numbers; accounts receivable and payable; inventory and payroll. It contains a word processor and a flexible report generator.

$179.95, 48K disk. MicroMiser Software, Inc., 1635-A Holden Avenue, Orlando, FL 32809. (305) 857-6014.

CIRCLE **154** ON READER SERVICE CARD



SYNCALC, SYNFILE+, B/GRAPH

The **SynCalc** spreadsheet and **SynFile+** database ($49.95 each, 48K disk) are currently the most widely used integrated productivity applications for 8-bit Ataris. Each program is powerful, while pop-up menus and clear commands simplify operation. SynCalc is compatible with VisiCalc .DIF files.

B/Graph ($39.95, 48K disk) creates pie charts, 2-D and 3-D bar charts, line and area graphs. You can graph three factors with 100 data points each and convert instantly between graph types without re-entering data. B/Graph also reads and writes to SynCalc .DIF files—enter data with SynCalc, then graph it with B/Graph.

Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171.

CIRCLE **121** ON READER SERVICE CARD

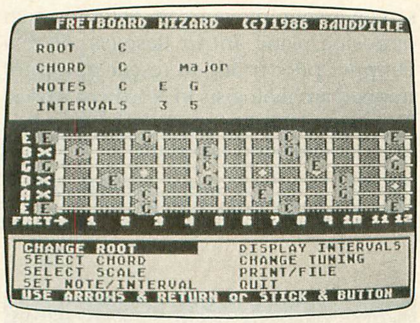
BUSINESS MANAGER

Business Manager is for the small businessperson who needs a simple accounting system to track sales and inventory without getting lost in fancy features. Written in Atari BASIC, Business Manager also runs with BASIC XL from OSS. This program also takes advantage of the extra RAM in a 130XE.

$49.95, 48K Disk. Reeve Software, 29W150 Old Farm Lane, Warrenville, IL 60555. (312) 393-2317.

CIRCLE **149** ON READER SERVICE CARD

MUSIC



along with more than 12 roots and nine positions, totaling 3,456 variations.

$24.95, 48K disk. Baudville, 5380 52nd Street, Grand Rapids, MI 49508. (616) 957-3036.

CIRCLE **130** ON READER SERVICE CARD

COLLEEN MUSIC CREATOR

Colleen Music Creator features Colleen Fun-Play, which provides realtime rhythm accompaniment in boogie, country, disco and waltz styles. The Drum Machine lets you create infinite drum patterns, and the Creator pushes your Atari sound chip to the limit, compressing music into an editable, compact machine language file. A sound effects library is provided too. All tunes created with the Creator can be combined into multiple music files.

$29.95, 48K disk. Colleen Limited, Hallwood I, 7535 S.W. Hall Blvd., Beaverton, OR 97005. (503) 641-6538.

CIRCLE **157** ON READER SERVICE CARD

ENTERTAINMENT

INFOCOM TEXT ADVENTURES

Dead Uncle Buddy Burbank, the Hollywood mogul, and Aunt Hildegarde have left you their entire estate—assuming you can find 10 treasures hidden throughout their lavish Malibu home. **Hollywood Hijinx** ($34.95) is loaded with memorabilia from Uncle Buddy's B-movies, which include *A Corpse Line* and *Vampire Penguins of the North.*



Fans of Stephen King or H.P. Lovecraft will feel right at home with **Lurking Horror** (34.95). Your worst nightmares seem like "Gilligan's Island" reruns compared to the goings-on at the George Underwood Edwards Institute of Technology (Gooey Tech).

Floyd's back in **Stationfall** ($34.95). Steve Meretzky's unforgettable Planetfall robot Floyd returns to help (?) you in your paperwork task force duties—routine at first, but watch out.

48K disks. Infocom, 125 CambridgePark Drive, Cambridge, MA 02140. (617) 492-6000.

CIRCLE **120** ON READER SERVICE CARD

ELECTRONIC ARTS ACTION

As a member of the Alliance, you must protect its outer regions against the invading Krellan and Zaldron empires in **Star Fleet** ($49.95). After graduating from the academy, you'll command one of 36 cruisers with a sophisticated array of weaponry at your fingertips.

Age of Adventure ($14.95) is a two-game reisssue package containing Ali Baba and the Forty Thieves plus The Return of Heracles. In **Lords of Conquest** ($14.95) the object is to be king of everything around. Lords has 20 prepared maps—infinitely more, if you decide to create your own world with the map-making utility or have the computer generate one.

"HOW DO YOU DO? PLEASE TELL ME YOUR PROBLEM." That's Eliza, the computer version of Dr. Ruth. Eliza, Pong, Adventure and Life constitute Software Country's **Golden Oldies** package ($14.95).

48K disks. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171.

CIRCLE **121** ON READER SERVICE CARD

SSI STRATEGY GAMES

In **Gettysburg: The Turning Point** ($59.95), the tide of victory turns frequently throughout the game, just as it did more than a century ago in Pennsylvania. Whenever the battle seems to be under control, reinforcements pour in for the other side.

With the **Wargame Construction Set**



($29.95), you can set up and play out conflicts ranging from individual hand-to-hand skirmishes to extended campaigns between great forces. You can build worlds that are real, modified or idealized. Then populate them with armies of "grunts" and tanks, starship troopers and space battle stations, dwarves and dragons or whatever you want.

SSI has packed all the major elements of surface engagements and command under fire into **Warship** ($59.95). While oriented toward the war in the Pacific from 1941-45, an experienced gamer can use the game's utilities to construct a wide range of naval warfare scenarios. The package comes with four ready-to-play scenarios from World War II, three of them taken from historical battles at sea and one using hypothetical battle-groups.

48K disks. Strategic Simulations Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353.

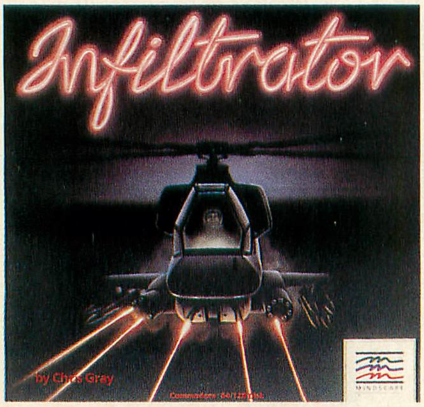
CIRCLE **122** ON READER SERVICE CARD

ENTERTAINMENT

COLOSSUS CHESS

Colossus Chess ($15.95, AP0161) is for any chess-lover, whether you're a beginner or a master. The space bar toggles between two screens—one showing the board and the other showing Colossus' "brain" considering thousands of moves. Onscreen elapsed-playing-time clocks add realism, and a game can be saved to disk to be picked up later.

48K disks. The Catalog, 544 Second Street, San Francisco, CA 94107. (800) 234-7001.



INFILTRATOR, TRAILBLAZER, RAMBO

In **Infiltrator** ($29.95), you'll zoom through enemy airspace in your helicopter toward strategic targets and try to destroy the Mad Leader's military force. This animated graphic adventure combines realistic helicopter flight simulation with exciting military ground action.

The fast-paced **TrailBlazer** ($29.95) is sort of a combination of Ballblazer and Marble Madness, featuring crisp graphics and interesting playing challenges. You must maneuver an extraterrestrial soccer ball down the "hyperspatial color grid" and across the finish line before time runs out.

As do all titles in Mindscape's new Thunder Mountain line, **Rambo**, an adventure graphics game costs $9.95—"the software industry's equivalent to the paperback book."

48K disks. Mindscape Inc., 3444 Dundee Road, Northbrook, IL 60062. (800) 221-9884.
CIRCLE **159** ON READER SERVICE CARD

MERCENARY: SECOND CITY

In **Mercenary** (29.95), you've crash-landed on the war-ravaged planet Targ, home of the organic Palyars and their robot adversaries, the Mechanoids. With you is Benson, a portable computer that tells you what's going on (in a limited way). In this first-person, 3-D game, your goal is to escape—by any means.

Mercenary: The Second City (14.95) is a sequel that must be played in conjunction with Datasoft's original game disk. The Second City is on the other side of the Planet Targ, and once again you must escape.

48K disks. Intellicreations (Datasoft), 19808 Nordhoff Place, Chatsworth, CA 91311. (818) 886-5922.
CIRCLE **124** ON READER SERVICE CARD

LEADER BOARD, TRIPLE PACK

Leader Board ($39.95) is a realistic golf game with three progressively tougher ability levels. The joystick-controlled game doesn't present roughs, sand traps or trees. But its hazards are dangerous enough—everywhere you look, there's water.

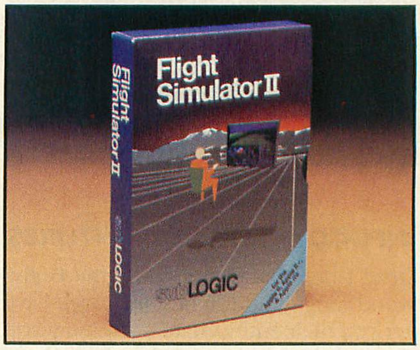
Triple Pack ($19.95) is an inexpensive three-game reissue. Beach-Head features aerial reconnaissance and the navigation of your ships through a hidden passage to destroy a castle. In Beach-Head II, you can assume the role of either The Dictator or J.P. Stryker, youngest man ever to make Allied Chief Commander. In Raid over Moscow, you must stop a nuclear attack by launching your fighter pilots out of the U.S. Space Station. They must fly through enemy territory to attack the missile silos.

48K disks. Access Software, 2561 South 1560 West, Woods Cross, UT 84087. (800) 824-2549. In Utah, (801) 298-9077.
CIRCLE **125** ON READER SERVICE CARD

TOP GUNNER, F-15 STRIKE EAGLE

Top Gunner ($24.95) features three best-selling MicroProse aerial combat programs. Hellcat Ace gives you a first-person 3-D perspective of 14 scenarios that recreate air battles from 1940 to 1944. MIG Alley Ace, set during the Korean War, has five scenarios, but a plane can be flown by a two-player crew. In the above games, the screen is split into cockpit views for each opposing plane. In Air Rescue, you're a chopper pilot trying to rescue a team of trapped archeologists in Northern Africa. The view is third-person 2-D in a treacherous underground labyrinth.

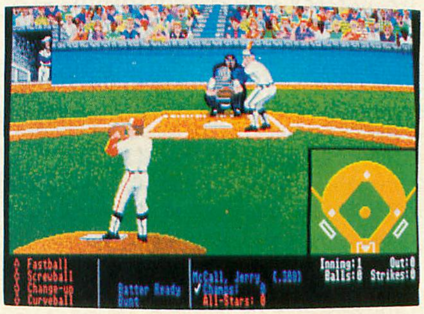
48K disks. MicroProse Software, 120 Lakefront Road, Hunt Valley, MD 21030. (301) 771-1151.



FLIGHT SIMULATOR II

Zoom your Piper Cherokee Archer around Chicago, New York, Seattle, Los Angeles or any of 80 realistic airports in this advanced flight simulation program. This sophisticated pilot training software provides believable flying practice after you learn the precise and detailed operating instructions. Additional **Scenery Disks** include San Francisco and Tokyo-Osaka ($19.95 each) or a six-disk Western U.S. set for $99.95.

$49.95, 48K disk. Sublogic Corporation, 713 Edgebrook Drive, Champaign, IL 61820. (217) 359-8482.
CIRCLE **127** ON READER SERVICE CARD



ENTERTAINMENT

HARDBALL, ACE OF ACES

Hardball, an arcade-style baseball game, features enticing graphics and 3-D perspective from three views. The joystick is used to choose lineups, select pitches and move fielders.

Ace of Aces simulates the thrill and challenge of flying a British Royal Air Force mission over World War II Europe. Fly the remarkable RAF Mosquito in four different air battles, each requiring special weapons, flying and navigational skills.

$29.95 each, 64K disks. Accolade, 20813 Stevens Creek Blvd., Cupertino, CA 95014. (408) 446-5757.
CIRCLE **158** ON READER SERVICE CARD



VIDEO VEGAS

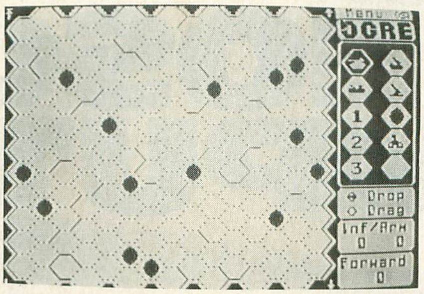
Video Vegas gives you the chance to be a big winner without actual monetary risk. You'll get plenty of inexpensive practice at Blackjack, which includes a card-counting tutorial, the Lucky 7 slot machine, Keno and Draw Poker.

$29.95, 48K disk. Baudville, 5380 52nd Street, Grand Rapids, MI 49508. (616) 957-3036.
CIRCLE **130** ON READER SERVICE CARD

CHESSMASTER 2000

The **Antic** reviewer says that **Chessmaster 2000** beat his copies of Colossus Chess 3.0 and Odesta Chess 7.0. If you are an avid chess buff, you will want the power of Chessmaster 2000 with its 20 levels of play and its library of almost 100 classic games. Outstanding graphics too.

$39.95, 48K disk. Software Toolworks, One Toolworks Plaza, 13557 Ventura Blvd., Sherman Oaks, CA 91423. (818) 907-6789. (Distributed by Electronic Arts.)
CIRCLE **132** ON READER SERVICE CARD



OGRE

Ogre takes place on a hypothetical battlefield in the 21st century where "Ogres" — huge computer-controlled cybernetic tanks, battle human-run, high-tech weapon systems. Ogre players must maneuver across most of the board to destroy or preserve the command post. Ogre is incredibly easy to play: GEM-like tools including dialog boxes, drop-down menus and "double-clicking" are used via joystick.

$29.95, 48K disk. Origin Systems, Inc., 136 Harvey Road, Manchester, NH 03053. (603) 644-3360.
CIRCLE **132** ON READER SERVICE CARD

GUILD OF THIEVES

The Guild of Thieves, long-awaited sequel to the ST hit, The Pawn, combines witty dialogue, challenging puzzles and outstanding graphics, as well as a humorous 40-page novella and other goodies.

$39.95, 48K disk. Firebird Licensees, Inc., 71 Franklin Turnpike, Waldwick, NJ 07463. (201) 920-7527.
CIRCLE **134** ON READER SERVICE CARD

LOTTO PROGRAM

The **Lotto Program** performs an analysis of the past winning lotto numbers, attempting to show the probability of which numbers are likely to surface in the next few drawings. This menu-driven program produces easy-to-read charts from which you can try to pick hot and cold numbers, frequency, patterns, sums of digits, odd/even numbers, digit groups and more.

$24.95, 48K disk. Soft-Byte, P.O. Box 556, Forest Park, Dayton, OH 45405. (513) 278-8044.
CIRCLE **135** ON READER SERVICE CARD

GUDERIAN

In this challenging simulation of the German Blitz across western Russia in the summer of 1941, the German player must capture and hold several key locations, fighting not only the Soviet player, but also the clock, just as General Heinz Guderian did 46 years ago. The Russian commander, however, does not have an easy job: those early Soviet units required constant leadership or else they wouldn't perform at all.

$30, 48K disk. Avalon Hill, 4517 Harford Road, Baltimore, MD 21214. (800) 638-9292.
CIRCLE **136** ON READER SERVICE CARD

NEW ALADDIN

This disk magazine features news articles, graphics, reviews of films and computer products, games, short stories, humorous pieces and celebrity interviews by Chantal, the Hollywood correspondent for ABC-TV's "Good Morning America." Six times a year, you'll find a package containing three or more floppy disks in your mailbox—which in turn contain volumes of material that will occupy you for hours.

$19.95 each, $79.95 per year, 48K disk. The New Aladdin, 12200 Park Central Drive, Suite 310, Dallas, TX 75251. (800) 345-6467. In Texas, call collect: (214) 788-4441.
CIRCLE **137** ON READER SERVICE CARD

WHITE BAG SOFTWARE

TK has released eight new discount titles at $14.95 each. **Money Spin**, the 8-bit Atari's answer to *Wheel of Fortune*, lets you put your own puzzles onto data disks. In **Balloon Pop**, use joysticks or paddles to help clowns bounce higher and higher to pop hundreds of balloons. **Barnstorm** brings back the challenges of the biplane pilot era, in 26 difficulty levels.

Play backgammon in **Gammon** with colored dice, doubling cube and screen-wide playing field, or go on a space mission to destroy all enemy missile launchers in **Laser Fed**. **Air Hockey** is a fast-moving, computerized version of the table-top game. **Lottery** tracks winning lottery numbers and gives probabilities of future winners. **Bowling** (Version 2, $20), features arcade action for up to four bowlers, with sound and graphics.

$14.95 each, 48K disks. TK Computer Products, P.O. Box 9617, Downers Grove, IL 60515. (312) 382-5244.
CIRCLE **139** ON READER SERVICE CARD

■

3D STEREOSCOPIC COMPUTING



Atari ST dealers and users: Enter the next dimension in computer graphics.

Watch game objects fly right out of your CRT. Discover the true structure of a molecular model. Weave your way through an infinite geometric universe.

LC Technologies' StereoTek™ system adds the ultimate in depth to Atari® ST computer graphics—true 3D displays in full color or high-res monochrome.

Simply connect a pair of StereoTek glasses to an Atari ST game cartridge port and load the appropriate software (see list). You're on your way to an entirely new visual experience, both in entertainment and education.

The StereoTek system includes a pair of Liquid Crystal Shutter glasses, connecting cable, and an ST cartridge interface unit that supports two pairs of glasses. You also get complete documentation, the DEGAS Elite Stereo Desk Accessory, and Stereo CAD-3D by Tom Hudson.

Software now available in StereoTek 3D

- Shoot-The-Moon
- Cyber Control
- 3D Design Disks
- Genesis' Molecular Modeling
- Maps and Legends
- Cyber Studio: CAD-3D 2.0 and Cybermate
- 3D Developers Disk
- LCS Wanderer

With much more coming soon!
Contact your local Atari dealer for StereoTek 3D glasses.

StereoTek System **$149.95***
Extra Glasses **$99.95***

Dealer ordering information:
Call 24 Hours Toll Free
1-800-426-2200
Ask for the StereoTek Operator.



STEREOTEK™

LC TECHNOLOGIES A Tektronix Company

Software available through Antic.
* Suggested retail price.

CIRCLE **069** ON READER SERVICE CARD

ST Resource

All the latest news for the ST user January 1988



Tony Carlson

Mega 4 Computer

Taking the wraps off Atari's most powerful ST

By Jon Bell *and* Patrick Bass

Atari's newest ST computers, the two-megabyte Mega 2 and four-megabyte Mega 4, were first shown at the January 1987 Consumer Electronics Show in Las Vegas. Our developer's Mega 4 arrived at **Antic** in mid-August, and the first Megas on dealers' shelves showed up at the end of September. The prices—with monochrome—are $1,699 for a Mega 2 and $2,399 for a Mega 4. For color systems, add $200.

Just how much is *new* in these three-piece Megas? (Atari decided last summer not to call the new computers Mega STs.) Will the Mega run current ST software? What about the oft-heralded blitter chip? And increased resolution? Are there card slots? Most of all, will the Megas make 520STs or 1040STs worthless?

Well, many things have remained the same. The Megas still use the Motorola 68000 microprocessor. GEM is still the operating environ-

continued on next page

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...an easy and inexpensive way to get the jump on the Holiday Season.

Give ***START, the ST Quarterly,*** to your favorite ST enthusiasts and help them get the most from their computers, year-round.

Like a high-tech Christmas stocking, every issue is packed with valuable articles, stuffed with practical tips and techniques. And, there's the Disk, loaded with programs both useful and fun.

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THE ST QUARTERLY
START

ment and Megas still run all ST software currently on the market. The Megas still offer Atari's crisp, clear ST color or monochrome graphics in the same low, medium and high resolutions.

WHAT'S NEW

But there *are* changes. The Mega's separate keyboard has a crisper typing feel. More significantly, the Mega has two or four million bytes of memory, a battery-backed clock and a *blitter* — a custom-designed chip that greatly speeds up some graphics and text operations. It does *not*, however, increase the screen resolution or give you more colors.

The computer itself is now a slim, flat box, connected to the keyboard via a coiled cable. The computer is about 3×13×13 inches—just the right size to support an Atari monitor. There's a double row of cooling vents on top, and the Mega's internal 3.5-inch double-sided disk drive opens conveniently on the front of the box.

As on the 520 ST and 1040 ST, there's a cartridge port on the left side of the Mega. The keyboard's coiled cable connects right next to the cartridge port (which may make some cartridges unusable, such as the L-shaped ones favored by Navarone Industries). A small compartment near the cooling vents houses two AA batteries for the Mega's internal clock, which keeps time even when the computer is off.

On the back panel of the Mega you'll find the following: the Reset button, On/Off switch, modem port (a standard RS-232C serial port with a male DB-25 connector), power jack, printer port (an IBM-standard parallel printer port with a female DB-25 connector), MIDI (Musical Instrument Digital Interface) Out port (for connecting the Mega to a synthesizer), MIDI In port, monitor port, floppy disk port and hard disk port. Actually, the latter is for an Atari hard disk or any other Atari DMA port device—including the Atari Laser Printer. (To use both, you'll need Atari's new interface box, the SLMC 804.)

A new item on the back of the Mega is the exhaust vent for the onboard fan—needed because the Mega has ample space inside for add-on boards that could produce more heat.

And just above the MIDI In and MIDI Out connectors is a removable plastic plate, with a removable *metal* plate right behind it. That's where the cable from an expansion board inside the Mega could exit to connect with the outside world. This opening is directly in line with a connector on the Mega's main board.

THE KEYBOARD

The separate keyboard is about 20 inches wide and 7 inches deep. The key arrangement is unchanged from earlier STs. On the underside of the keyboard are the mouse and joystick ports. The connectors are in recessed areas similar to those on a 1040. Centered at the back is Port 0, the mouse port, and to one side is another recessed area for Port 1, the joystick port.

The underside of the keyboard also sports a pair of hinged, 2-inch-wide plastic legs which you can raise and lock into place. This lifts the back of the keyboard and changes the typing angle.

If the keyboard sits too close to the computer, it's hard to use the disk drive slot even without the legs extended. So if you prefer sitting close to your monitor, one solution is to put the computer on a platform or on top of Atari's new 20 megabyte hard drive, the SH205, which has a case the same size as the Mega.

Many ST owners clamored for a crisper feel to the keyboard, and Atari listened. The mushy rubber cups have been replaced by the traditional springs of a standard keyboard. Everyone at Antic Publishing who tried it liked it. Use it for a week, and you'll never want to return to your original ST keyboard.

MEGA COMPATIBILITY

But while the Mega has been redesigned, it's still basically an ST with lots more memory. All hardware addresses have remained the same, and the Mega is compatible with existing software produced for the original 520 STs and 1040 STs—except for programs that don't follow Atari's software development guidelines. These mostly include programs that make "illegal" calls to the TOS operating system, and those with special disk copy-protection schemes (especially games and other programs that depend on disk drives that can read more than 80 tracks.)

We tested the Mega 4 with a wide range of commercial software. Though some software couldn't take advantage of the full four megabytes of memory, we had no significant problem with any major software package.

One reason Atari decided to create the Megas has to do with both business *and* graphics—the forthcoming low-cost Atari laser printer, the SLM804. Laser printers have traditionally been expensive because they've had to *be* computers themselves, with a CPU and megabytes of memory inside to create each printed page.

Atari's solution: Let the computer and laser printer share the CPU and memory. The plan is to sell a computer-laser printer combination at a lower price than other laser printers cost alone. Jack Tramiel and his business warriors hope to make as much a splash in desktop publishing as the ST's MIDI port has already made in the world of electronic music.

The Megas are clearly intended to help Atari work its way into the business world. With their vastly increased memory and serious, businesslike appearance, the Megas may help Atari finally shake its game-machine image and establish a place in corporate America.(For additional technical details about the Mega, see the Winter 1987 issue of START, The ST Quarterly.) ■

FEATURE REVIEW

STrange Adventure Worlds

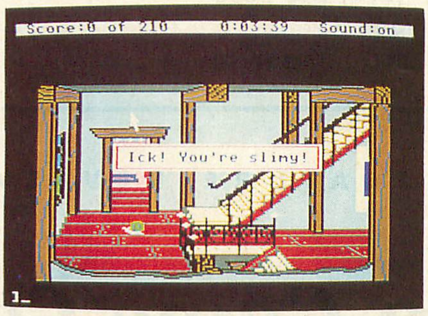
Kings Quest III, Space Quest, Tass Times in Tonetown

Reviewed by SOL *and* REBECCA GUBER

King's Quest III, **Space Quest** and **Tass Times in Tonetown** are three adventure games for the ST. They're all similar—each one presents a world that the player must navigate—but the differences among those worlds are striking.

King's Quest III, subtitled "To Heir is Human," doesn't really begin where King's Quest II leaves off, as you might expect. Instead, it has a much different object—you have to escape from the evil magician Manannan and find your way home. Like other Sierra On-Line games, it has a small character onscreen that you control with either a joystick or mouse. In King's Quest III the main character is a boy named Gwydion who must gather all the necessary ingredients to perform magic spells—flying, storm-bringing, transforming someone into a cat and even invisibility. The accompanying manual explains the incantations needed for each spell.

This game plays much like King's Quest II—you have to navigate through a series of mazes, for instance. You can save and restore the game, and put a note into the saved game to show where you left off. There's also a clock onscreen—you have to perform certain actions within a time limit. The graphics are more sophisticated than in earlier games. For example, at one point Gwydion walks toward a mirror that shows his reflection; as he moves closer to it, his image becomes larger, and when he walks away, the mirror shows his back. There are many scenes for the different lands Gwydion comes to, and the graphics seem more involved. There are times when three different characters are moving around. It really is like playing an animated cartoon.



King's Quest III is a game of medium difficulty—you won't finish it in a week or two. Though it's similar in layout to King's Quest II, with its different themes and the time constraints the game becomes much harder. If you've played one of the King's Quest games, or even if you haven't, you are in for a real treat—this is the hardest one so far, but it's also the best, and I recommend it strongly.

Space Quest is another animated graphic adventure from Sierra On-Line. This time you're on a spaceship, and the object is to save the world from the evil Sariens. You have to fly to a nearby planet, then fly back up to the Sarien spaceship, which you board and explore.

It's very easy to get killed in Space Quest—once you're on the Sarien ship, there are aliens almost everywhere that will shoot at you, and the game pops up with smart remarks if you're unfortunate enough to get yourself killed. Space Quest has an option allowing you to save the game several times; as in King's Quest III, you can leave yourself a message in the save. There are also pop-out dialog boxes to tell you things. There are several arcade-type games within Space Quest—they're difficult, and the puzzles are tricky. The background graphics are very good, and there are lots of them. The game shows you two levels of landscape at a time, such as two spaceship or cave floors, so you know when you are on the right track.

Other nice features? You can put the game on a hard disk, speeding up its operations. (You still need the first disk to load the game.) From a hard disk, you can get killed but then reload a saved game in less then 30 seconds.

I liked Space Quest, though it's fairly difficult, and I think some of the puzzles aren't really fair. But if you want a medium-difficulty space adventure game with lots of puzzles, pick up a copy of Space Quest.

Are you Ultratone or a total tourist? You won't even understand the question until you play **Tass Times In Tonetown**, an unusual graphics adventure game from Activision. The object is to find Gramps, who went through a space warp door into a strange world called Tonetown; you must follow and rescue him. Gramps's dog comes with you—in Tonetown he's a talking-dog newspaper reporter named Ennio who can tell you about this bizarre new world.

Tonetown is full of trendy punk rockers; to be "tass," you must wear the right clothes and talk the right way, or you'll be labeled a tourist. There are also dangers here—be careful when you explore, or the crocagators will get you! This game really shows off the ST's graphics and sound. The graphics are colorful and detailed with some animation, and the punk colors are well-chosen. It's easy to play because you do not need to type the commands. You can click

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on choices from a menu to talk to someone, look at something or pick something up. It's easy to do and speeds up the game. You can also save and reload the game from a menu; each save is numbered, but you have to remember where you were.

There are some things I don't like about Tass Times in Tonetown. The noises sometimes drive me crazy, and you can turn them down but not off. I also don't like the fact that you have to perform the actions in a certain order. These caveats aside, though, I can recommend this game. It's very colorful and easy to play, but hard to solve—there's a newspaper included with the game that contains lots of clues. I like the idea of the punk-rocker world, but I still haven't gotten Gramps out of Tonetown. ■

KING'S QUEST III
Sierra On-Line
Coarsegold,Ca 93614
(209) 683-6858
$49.95
CIRCLE 235 ON READER SERVICE CARD

SPACE QUEST
Sierra On-Line
Coarsegold, Ca 93614
(209) 683-6858
$49.95
CIRCLE 236 ON READER SERVICE CARD

TASS TIMES IN TONETOWN
Activision, Inc.
P.O. Box 287
Mountain View, CA 94039
(415) 960-0410
$39.95
CIRCLE 237 ON READER SERVICE CARD

FEATURE REVIEW

Education Game Contenders

Perfect Match and ST Alpha Bytes

Reviewed by SOL GUBER

Perfect Match and **ST Alpha Bytes** are a pair of educational games for the ST. Perfect Match uses uses a "match the card" theme to teach facts to older children; ST Alpha Bytes teaches younger children alphabet recognition and reading skills.

The Perfect Match screen consists of 24 cards—12 questions and 12 answers. When you pick a card, it's flipped over. Then you pick a second card, which is also flipped. You then have to decide if the question and answer are a match. You get points for answering correctly and if the cards are a match. You can play Perfect Match with another person or solitaire.

Topics include the Bible, Animals, Presidents, Sports, the World Wars, and there is even a special category that randomly selects questions from all of the categories. You can also generate your own question sets. There's an adjustable difficulty level, and a help feature will give out answers if you're stumped.

Unfortunately, the game is somewhat disappointing. Each category contains only a small number of questions, and it's very easy to learn all of the questions in any category. There are not nearly enough questions here for a trivia-type program, even with Perfect Match's ability to generate more question sets. (And the question-generator program uses a very cumbersome interface. It takes some effort to remember which keys you need to use for moving from one question to another, and there is no editing capability except for the backspace key.)

Perfect Match also lacks any real pizazz. The game does use several sound effects as the cards shuffled and flipped, and a fanfare when you answer a question correctly. The scanty four-page manual is mostly concerned with the question-generator program. Basically, Perfect Match is just so-so.

ST Alpha Bytes is designed for children 2 to 6 years old, and it uses colors, action and sound to make the program enjoyable and to keep the child's attention. Unfortunately, I think the program has been targeted to the wrong age group and misses the mark.

The basic premise here is simple: At the bottom of your ST screen is a keyboard with a Rube Goldberg machine and a robot just above it. A letter appears on left side of the screen, a picture appears on the right, and in the middle is a box with three words. (For example, the letter C has the words church, camera, and clock shown with it.) The object is to click on or type the correct choice. If you're right, the machine runs and beeps several times and the robot smiles. You can vary the amount of time for the choice, choose a demo mode, or even remove the machine and robot.

There are several flaws in Alpha Bytes. It's in medium resolution, so there are only four colors, and the thin font the program uses to make up the letters is difficult for a small child to read. The screen is also very cluttered; between the keyboard, the machine, the robot, the words, the graphics and everything else going on, it is difficult for a 2-to-six-year-old

child to focus on what is being taught. There are only three pictures for each letter. The time element is also not appropriate—there are few children at age 6 who will be able to read three words and choose the correct one within five seconds. It is even difficult for some adults.

The 20-page guide covers theories of reading for children and shows what to expect from various age groups. The package also comes with a poster to be colored and two packets of stickers. There's also a score sheet that can be printed to show which words have been learned.

All in all, this is a program that has missed its target. For a young child, the words are too difficult and the screen is too cluttered. For an older child, the program isn't interesting enough—it needs more colors, and songs rather than sounds. There are many nice touches in ST Alpha Bytes, but for young children to learn alphabet skills, a program with more colors, more words and less difficulty is needed. ■

PERFECT MATCH
MichTron
576 S. Telegraph
Pontiac, MI 48053
(313) 334-5700
$39.95
CIRCLE **240** ON READER SERVICE CARD

ST ALPHA BYTES
Mission Soft
P.O. Box 3916
Seal Beach, CA 90740
(213) 439-6281
$29.95
CIRCLE **241** ON READER SERVICE CARD

FEATURE REVIEW

Games or Simulations?

Karate Kid II, Shuttle II and High Roller

Reviewed by SOL GUBER

Simulations are the hottest entertainment software these days—you can now simulate everything from sports to spaceships on your ST. **Karate Kid II**, **High Roller** and **Shuttle II** are three very different simulations that cover the whole range.

Karate Kid II is a karate fighting game from England with some of the finest ST graphics I've ever seen. The object is to defeat your opponent in karate combat, playing against another person or the computer. You control your player, Daniel, with the joystick; he can move left and right, jump and duck, somersault forward and backward, punch, kick and roundhouse kick. The details on the characters are so good that all their movements are very visible.

The computer plays well and is difficult to defeat, although I enjoy the two-player mode more, since you can play against a friend. The fights are in rounds; win a round and you battle a tougher opponent next round. After every second opponent there is a test of skill. In the first test you try to catch a fly with chopsticks; in the second, you are supposed to break sheets of ice. These are difficult and require lots of practice.

The background screens are excellent, with highly-detailed, Asian-themed graphics, and the two user-controllable fighter figures are also very well executed. There is a high score screen, but it does not save the scores to the disk. There's a problem if you have a hard disk: The program will sometimes just die, forcing you to reboot and start over. Unplugging the disk drive does solve this problem.

Is this a good game? Well, yes and no. The graphics in Karate Kid II are wonderful, but I'm not sure about its staying power as a game—I wish there were more to it then just kicking and fighting. But as a simulation it's fine—I play it often with friends just to show off the Atari's graphics.

High Roller simulates the Harrier jet fighter plane. Your mission is to destroy a terrorist headquarters 500 miles from your base, but you must first learn to fly the Harrier. High Roller has several levels of play, and it takes solid tactics as well as quick reflexes to complete your mission successfully. It also has good 3-D graphics and a realistic first-person perspective for flying the Harrier.

The Harrier can change its engine thrust from horizontal to vertical and can thus land and take off on very short runways, or even straight up. It can accelerate and decelerate rapidly, moving quickly and unpredictably; High Roller has a much different feel from other flight simulations. Your controls are on the ST keyboard: You can increase and decrease power, change flaps and thrust vector, and fire missiles, bombs, and homing devices. The screen lets you see your instrument panel and a view out the cockpit; you can see your power level, direction of thrust, fuel supply, weapon inventory and radar. You also have a scrolling map and target display that shows mountains, tanks and enemy aircraft.

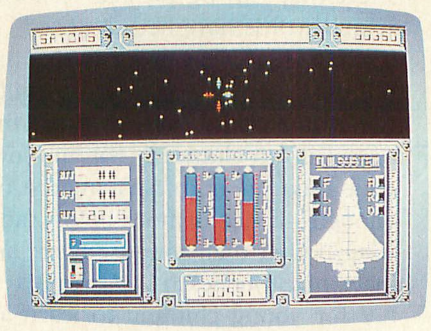
Your mission is to destroy the enemy headquarters, but first you must destroy enemy ground forces

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and set up bases for your ground troops. You cannot re-arm or refuel until your forces arrive, so the preparing of bases is an important part of the game. Air combat is another important part of the game—you must attack enemy MiG-23 Fencer jets as well as land tanks. High Roller's 32-page manual shows how to perform classic combat maneuvers like the Scissors, the Immelmann and the Split S. It also shows how to perform a deceleration maneuver unique to the Harrier. As you rise through the three levels of difficulty, you encounter G-forces, fuel-level problems and reduced weapons range and accuracy.

High Roller has excellant playability, with smooth scrolling, excellent controls, and gives a very realistic feel of flying the Harrier. The combination of flying and combat make this worthwhile as a game or simulation.

Shuttle II takes you even higher—it lets you fly a space shuttle mission, from liftoff to landing. This time you make all choices using the mouse—the keyboard is used only occasionally. The graphics are very well done,



and the sound effects make the game attractive but not obtrusive.

Flying a mission begins with selecting one of the six difficulty levels, then picking the launch and runway sites. Here you decide how much wind and cloud cover there will be during your takeoff; the more difficult the conditions are, the more points you receive if you accomplish it properly. Once you take off, you have a view of both space and the earth, along with a flight control panel. There are controls for the nose pitch, which determines direction and rate of ascent; the wings, which affect the roll of the shuttle; and thrust. You get extra points for matching the mission's projected flight path, and you must put your craft through tricky maneuvers such as the altitude dive for the external tank separation.

Once you're in orbit you can search for the satellite that you need to retrieve. The flight display shows you the range, the angle of displacement and your difference in altitude from the satellite. You must get within five miles of the satellite before you run out of fuel; if you don't find the satellite, you receive no bonus points. Then you have to don a jet pack and collect the satellite before you run out of oxygen and jet-pack fuel. Finally, you can return to your base and land safely.

Shuttle II is a good simulation. Each game takes about 10 to 15 minutes. The graphics are good and the mouse control is acceptable. The scoring system lets you know how well you are doing, and the ten highest scores are saved to disk. The disk is copy-protected, but you can duplicate the files and put them back if any problems occur. All in all, Shuttle II is a nice flying simulation with a non-violent touch. With luck and a lot of practice, you should be able to reach level six someday. ■

KARATE KID II
distributed by MichTron
576 S. Telegraph
Pontiac, MI 48053
(313) 334-5700
$39.95

CIRCLE **230** ON READER SERVICE CARD

HIGH ROLLER
Mirrorsoft, Inc.
distributed by Mindscape
3444 Dundee Road
Northbrook, Il 60062
(312) 480-7667
$49.95

CIRCLE **231** ON READER SERVICE CARD

SHUTTLE II
MicroDeal
Distributed by MichTron Inc.
576 S. Telegraph
Pontiac, Michigan 48053
(313) 334-5700
$39.95

CIRCLE **232** ON READER SERVICE CARD

ST New Products

By GREGG PEARLMAN, *Antic Assistant Editor*

ROYAL PAIR

The GEM-based **Payroll Master** ($79.95) supports multiple pay types, all pay periods, vacation/sick pay, and handles 400 employees. It features user-defined tax tables and highly detailed report generating: user-defined payroll checks, W-2 forms, employee information reports, all tax reports and more.

Inventory Master ($99.95) keeps track of sales history and vendors, estimates future sales figures and computes the recommended reorder levels for each inventory item. The Purchase Order section lets you issue, view, receive and fill orders. The report section includes more than a dozen reports, special sorts and more.

Royal Software, 710 McKinley, Eugene, OR 97402. (503) 683-5361. PRESS.
CIRCLE **260** ON READER SERVICE CARD

WORD II

Dac-Easy Word II, Dac Software's newest Series 2.0 program, features a pull-down menu screen, a 32,000-record limited database, flexible mail merge template, multiple windows and a 90,000-word dictionary with word select and search options. Word II, written in C, supports more than 200 different printers and lets you export Word II files to ASCII and imports ASCII or paragraph-delimited ASCII, as well as Word I text files.

$49.95. Dac Software, Inc., 4801 Spring Valley Road, Building 110-B, Dallas, TX 75244. (214) 458-0038. PRESS.
CIRCLE **261** ON READER SERVICE CARD

HILLS ARE ALIVE

Electronic Arts has added special features for the ST to its famous **Music Construction Set**. These include MIDI In, MIDI Out, "Jukebox" play mode, and waveform editing (which lets you create your own instruments). The interface is easy and powerful: just point to the desired note onscreen and click it into place on the score. Or click on the onscreen keyboard. Or enter notes directly from a MIDI instrument connected to your ST.

$39.95. Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404. (415) 571-7171. PRESS.
CIRCLE **253** ON READER SERVICE CARD

B/W COMPUTEREYES

Capture real-world black-and-white images with the monochrome-only version of the **Computereyes** video digitizer package. This hardware/software combination plugs between the cartridge port of your ST and any standard video source—a video camera, VCR, videodisk player, etc. The video signal is scanned in six seconds in low-resolution, 12 seconds in medium-resolution and 24 seconds in high-resolution, producing NEOCHROME- or DEGAS-compatible images that can be transferred to T-shirts.

$149.95. Digital Vision, Inc., 66 Eastern Avenue, Dedham, MA 02026. (617) 329-5400. PRESS.
CIRCLE **273** ON READER SERVICE CARD

MORE!

More! Graphics ST, an unprotected collection of 128 icons, symbols and letters, is compatible with Printmaster and Printmaster Plus, DEGAS and DEGAS Elite, Typesetter Elite, PM Interface and Publishing Partner. More! Graphics ST works with either a color or monochrome monitor.

$14.95. The Pierstorff Company, 131 W. Main Street, Woodland, CA 95695. (916) 666-3530. PRESS.
CIRCLE **270** ON READER SERVICE CARD

MIDIMOUSE

The **Matrix 12/Xpander Patch Librarian** ($49.95) lets you transfer patch data to or from the MIDI instrument or between files. You can have an entire data dump—100 single and multi-patches—in memory at once, and a bank of 100 single files can also reside in memory. Single patches can be transferred between the synthesizer and files, and entire fils can be dumped to the synthesizer.

The menu-driven **Fast Tracks ST** ($129.95) MIDI sequencer gives you fast and easy real-time music processing. Sixteen sets—collections of up to 16 sequences, each containing up to 16 track—can reside in memory at once. The tracks run simultaneously, as in a multi-track tape deck. Each sequence can be looped or chained with other sequences in the set.

MIDImouse Music, Box 272, Rhododendron, OR 97409. (503) 622-4034. Both items PRESS.
CIRCLE **255** ON READER SERVICE CARD

SYNTHVIEW

SynthView is a GEM-based patch librarian and editor that lets you create custom banks for the Korg DW-8000 and EX-8000 synthesizers. Editing is done on a single screen: just click on the patch or parameter you want to change. Patches can be named and banks printed. Either can be sent and received from your synthesizer. Totally hard drive-compatible.

$49.95. Synergy Resources, 754 N. Bolton Avenue, Indianapolis, IN 46219. (317) 356-6946. PRESS.
CIRCLE **264** ON READER SERVICE CARD

FIREBIRDS

You're an oppressed Orc, and you're sick and tired of being persecuted by human supremacists who make you mop up dangerous chemical spills, sample poisoned food to see if it would kill rats, and type in their ST BASIC programs without using TYPO ST. **Knight Orc**, a Firebird retelling of *Conquest of the Planet of the Apes*, is your chance for revenge against these nose-in-the-air goofballs. Knight Orc features full character interaction and accepts high-level commands, drawing from a 1,000-word vocabulary.

Guild of Thieves, the hungrily-anticipated sequel to The Pawn, gives you outstanding graphics and challenging puzzles, humorous dialogue, a Bank of Kerovnia credit card, an Indenture and Contract of Service Certificate, a Douglas Adams-esque 40-page thieves' newsletter and more.

$44.95 each. Firebird, 71 N. Franklin Turnpike, Waldwick, NJ 07463. (201) 444-5700. All items PRESS.
CIRCLE **252** ON READER SERVICE CARD

BAG O' MICE

MousePouch is a vinyl/suede "velcro-driven" pocket that attaches to the side of your monitor or any other convenient surface. It holds a mouse, eight 3 1/2-inch disks, pens, pencils, labels or other supplies—and keeps your workstation free of clutter. Available in light gray with silver trim or natural tan with gold trim.

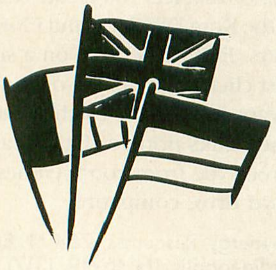
$5.95. H&H Enterprises, P.O. Box 2672, Corona, CA 91718. (714) 737-1376. FINAL.
CIRCLE **250** ON READER SERVICE CARD

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Publisher's Report from Europe

$500 Atari CD ROM Unveiled

By GREGG PEARLMAN, *Antic Assistant Editor*



Atari showed a CD ROM player—to sell for about $500—at the Personal Computer World (PCW) Show in London. The unit will also play audio compact disks. U.S. premiere of Atari's CD ROM was scheduled for the COMDEX show in November.

(***Antic's*** *October 1985, cover story reviewed a 540-megabyte CD ROM which put the entire 26-volume Grolier Encyclopedia on a single compact disk and used an Atari ST to locate any entry in less than three seconds. Atari held off marketing an ST-based CD ROM system because until now they couldn't find a third-party manufacturer to deliver CD ROM players at this price range.*—ANTIC ED)

It was also announced at the show that Cambridge University is developing an ST transputer for Atari. A transputer is a speed-up box that gives a personal computer the data-crunching power of an expensive workstation. (*Kuma's K-Max ST Transputer was reviewed in START, Fall 1987.*—ANTIC ED)

In September 1987, James Capparell, Publisher of **Antic** and START Magazines, attended Atari exhibits at major computer shows in Dusseldorf, Germany and Amsterdam, Holland as well as London. He brought back the information in this report.

Capparell says, "'For three years, we've been travelling to Europe for these shows. Now a lot of other American companies also attend, but I'd say we were ahead of the pack by a couple of years. **Antic** Magazine is very well known throughout Europe and START is becoming sought-after too. Antic Software has also gained recognition and we're setting up exclusive distribution in Germany, France and the UK.

"The ST is the best-selling personal computer in Germany. Atari's German organization does a wonderful job. There are about 150,000 STs in Germany and 30,000 to 50,000 in both France and the United Kingdom. Italy, Scandinavia and the Netherlands are coming up behind that.

"At the big German computer show in Dusseldorf, I saw a lot of ST software for science laboratories, plenty of desktop publishing and graphics, many languages for the ST, everything from Prolog to APL—even Smalltalk. There also seemed to be lots of hardware development going on. I saw a lot of video input/output devices—scanners, digitizers, plotters.

"Also, they're moving the Atari 8-bit line into Eastern Europe very strongly. (The 16-bit ST is not allowed to be sold in Eastern Europe.) In fact, there's some discussion about licensing **Antic** in Eastern Europe. In general, the 8-bit is doing well in Europe. There's still significant 8-bit development—even if not as much as in the past—and plenty of 8-bit users." ■

MORE ANIMATION

ST Director Series ($79.95) consists of Art Director, a full-featured painting program, and Film Director, a state-of-the-art cell-style animation program. Both programs have icons, pull-down menus and dialog boxes.

Karateka ($34.95), the 8-bit karate hit, takes full advantage of the ST's color, resolution and power, combining an intricate plot, detailed animation and realistic, player-controlled martial arts action.

Broderbund Software, 17 Paul Drive, San Rafael, CA 94903-2101. (415) 492-3200. PRESS.

CIRCLE **265** ON READER SERVICE CARD

WANT FONTS?

FontEdit, a GEM font editor, lets you create and edit all bit-mapped fonts. The on-screen control offers most common operations. Works on color or monochrome monitors. **Specific Fonts 2**, for Epson or HP LaserJet+ printers, features four typefaces ($65 each): Shady, Compac, CompOut and BigFoot.

$165 ($195 when bundled with an International GEM Desktop or Specific Fonts 2). Specific Solutions, 1898 Anthony Court, Mountain View, CA 94040. (415) 941-3941. PRESS.

CIRCLE **266** ON READER SERVICE CARD

MICHTRON MONTHLY

Many of your files are probably written to several blocks of formerly free space on your hard drive. When it tries to read the files, the hard drive must skip to each section that makes up the full file—which takes time. **TuneUp!** ($49.95), a floppy and hard disk optimizer, rewrites files to contiguous blocks on the hard disk while it consolidates free space. The drive will reward you by running at optimum speed—as long as you use TuneUp! every couple of weeks or so.

For anyone with a math phobia, the **Algebra I** series, Volume I ($39.95), might be the place to start. It's designed for the mature student who *wants* to learn algebra—not the one who wants to be *tricked* into learning it. The Linear Equations program has 66 different types of equations, and the Verbal Problems section contains 30 different types of story problems in 10 different areas.

ST New Products

The GFA-BASIC Companion ($49.95) lets you build sliders, radio-button, dialog help text or error boxes—or even custom boxes with the program's Dialog Box Source Code Generator. **GFA-VECTOR** ($49.95), a 3-D graphics program for the GFA-BASIC Interpreter, lets you create and manipulate images and optical effects to be placed into your GFA-BASIC programs. You can create real-time animations via coordinates or interactively onscreen with the 3-D graphics editor.

The **Make It Move** animation program ($49.95), combined with a paint program, lets you generate and display colorful business reports, professional-looking titles and animation sequences for home or industrial video recordings, and other exciting demonstrations.

The **ST-DIGIDRUM** kit ($39.95) includes a bass drum, snare, closed hat, cowbell, low or high tom, low or high bongo, tambourine, electro-bass, electrosnare, hand clap, electro-clap and a dog bark. Because ST DIGIDRUM is polyphonic, you can have several drums sounding at once.

MichTron, 576 S. Telegraph, Pontiac, MI 48053. (313) 334-5700. All items PRESS.
CIRCLE **274** ON READER SERVICE CARD

TWO FROM ISD

Version 2.0 of **STAccounts** ($349.95) fully integrates Accounts Receivable and Payble, inventory control and general ledger. The hard drive-compatible STAccounts gives you check-writing facilities and handles batch invoicing and order entry for both sales and purchases. (START review Winter 1987.)

VIP Professional, Version 1.2 ($249.95) uses commands identical to Lotus 1-2-3, reads and writes Lotus files, and offers all Lotus features, including powerful macros. For the Mega, it addresses up to 4Mb of memory and features multiple windows, color business presentation graphics and ultra-fast floating point math. It includes Lotus' 50-plus built-in financial and mathematical functions and versatile database with up to 8192 records, each with up to 256 fields. (START review Fall 1987.)

ISD Marketing, Inc., 2651 John Street, Unit 3, Markham, Ontario, Canada L3R 2W5. (416) 479-1880. PRESS. FINAL.
CIRCLE **254** ON READER SERVICE CARD

TMON ST

The cartridge-based **TMON ST** is a powerful debugging tool whose menu bar and windows allow multiple simultaneous views of your program during debugging. The monitor can be invoked by any system error, TMON ST breakpoint, or user-definable system call. You can halt, examine, disassemble or dump any running program to the printer, then return to where you left off. Features include a built-in programmer's calculator and an electronic note pad.

$149.95. ICOM Simulations, Inc., 648 S. Wheeling Road, Wheeling, IL 60090. (312) 520-4440. PRESS.
CIRCLE **272** ON READER SERVICE CARD

PASCAL 2

Metacomco's **Pascal 2** compiler and development system provides an ISO standard compiler core and a large range of extensions for those who want to access all features of the Motorola 68000 and GEM. Pascal 2 offers single- and double-precision floating-point arithmetic, full 32-bit pointers, sequential and random access files, dynamic strings, conditional compilation and separate compilation, as well as bitwise integer operations, OTHERWISE in CASE statements, and binary, decimal, octal and hexadecimal integer and character constants. Debug+, the kit's new link-loader, incorporates a source level symbolic debugger and disassembler, and the resource construction editor lets you create your own resource files for icons, menus, dialog boxes and alerts. The screen editor allows four windows open at once.

$99.95. Metacomco, 26 Portland Square, Bristol BS2 84Z, England. BRISTOL (0272) 428618. PRESS.
CIRCLE **267** ON READER SERVICE CARD

New ST product notices are compiled from information provided by the products' manufacturers. ***Antic*** *assumes no responsibility for the accuracy of these notices or the performance of the product. Each mention is followed by a code word indicating that, at press time,* ***Antic*** *had seen a FINAL marketable version, near-final BETA, earlier ALPHA, incomplete DEMO, or PRESS release.*

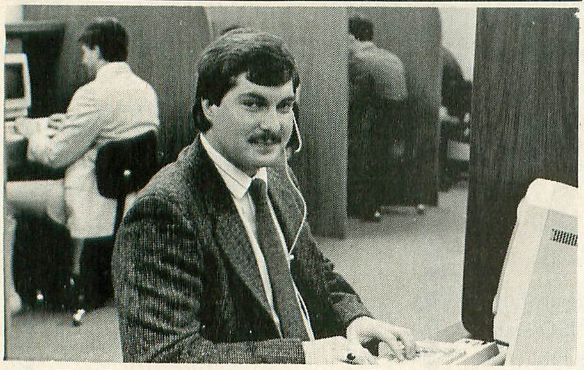
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CIRCLE 020 ON READER SERVICE CARD

GFA BASIC Loader

Converts virtually any ST file!

By PATRICK BASS, *ST Resource Technical Editor*

In future issues, the ST Resource will be offering small, helpful programs written for the Atari ST written in languages you may not have. If you don't have an interpreter or compiler for a program's language, it would ordinarily be impossible to use—a big waste of your time.

To prevent this from happening, here's a two-part program that will let you type in almost *any* ST program—or even pictures and other non-program files—in GFA BASIC.

RABBITS IN HATS

There's no magic involved. The first program, PART_A.BAS, takes an ST disk file and converts it into GFA BASIC data statements. We'll run this program on a file we want you to type in from the magazine—or you can use it yourself on files you want to send in hardcopy form to friends. Once the program is in the form of data statements, it's easy to type in to GFA BASIC—and the second program, PART_B.BAS, will rebuild the original file.

USING IT UP

Let's walk through what you need to do to convert a small file to data statements and then back again. For our demonstration, we'll use DESKTOP.INF. (If you don't have a DESKTOP.INF file on your disk, click on Save Desktop from the main Desktop and it will create the file.)

First, type in and run the program in *Listing 1*, PART_A.BAS, under GFA BASIC. When you run the program, a file selector box appears, asking for the file to convert. Select your DESKTOP.INF file, and the program will convert the file to data statements and write them back to the disk as DESKTOP.LST. Indeed, any file converted is given the original file's name with ".LST" as the new extender. This new file, DESKTOP.LST, is a typable, listable program file, as you'll find if you load it into GFA BASIC.

Now type in *Listing 2*, PART_B.BAS. This program isn't complete—before you run it, you must merge in the DESKTOP.LST file that you just created. Once you've done that, all you have to do to recreate the original file is perform the procedure call **@Recreate(Filename$)**, where **filename$** is the name you wish to recreate the original file under.

To recreate DESKTOP.INF, type in the line **@Recreate ("DESKTOP.INF")**. The disk will whir for a few seconds, and when you check the disk directory you will find DESKTOP.INF faithfully recreated on the disk. ■

Listing on page 75

ST Product News

ST Reviews

GATO

Spectrum HoloByte Inc.
2061 Challenger Drive
Alameda, CA 94501
(415) 522-3584
$39.95

CIRCLE 231 ON READER SERVICE CARD

Reviewed by Rick Teverbaugh

GATO is a worthy follower along the same path navigated recently by Microprose's Silent Service. GATO is a real-time submarine simulator that puts you in the role of captain of a World War II attack submarine.

In GATO, you are given your mission objectives over the radio before you begin your dangerous patrol. As in the Pacific theater during World War II, your main objective is to destroy as much enemy ship tonnage as possible without getting destroyed yourself. You have to attack and retreat at strategic moments, scoring hits while keeping your sub intact enough to return to your home port.

Unlike flight simulators, which often have real geographic areas and airports for you to fly over, GATO's area of patrol really has no historic perspective. You have 20 oceanic quadrants, interspersed with a few land masses. On your main screen are rudder, depth and speed controls, as well as switches to use diesel or battery power (surfaced and submerged running, respectively), to fire torpedoes, to lay mines and to raise, lower and move the periscope. Your main view, in the center of your screen, represents either the periscope view or the view from the bridge, depending upon whether you're submerged or on the surface. Also on the main screen are indicators of depth, speed and heading, battery charge and fuel remaining. Your main screen contains most of the information needed to complete each mission successfully. The only time a second screen is necessary is when you make a request for the quadrant map.

You can run GATO through either the mouse or keyboard. Since most ST games use the mouse, it isn't surprising that this way feels the most natural. But it's nice to give gamers a choice.

Before you begin a mission, you must decide on how many mines and torpedoes you'll have available. The more mines you stock, the fewer torpedoes you'll be able to fit, and vice versa. I advise to take more torpedoes and fewer mines, at least in the beginning. In early missions, most enemy ships tend to flee more often than attack upon contact with you. In the offensive mode, torpedoes are much more valuable to you than mines. GATO lets you save up to five games in progress and return to them later. Tonnage of ships you've destroyed is recorded and saved each time you make it back into port. Being sunk or starting a new game will erase the total.

GATO's graphics aren't as flashy as Silent Service; sometimes it's hard to tell whether the blip on the horizon is an enemy ship or a land mass. But the game does have very nice playability. It's always easy to get the program to do what you want it to do. And since GATO is in real time, that feature is essential. About the only time GATO avoids the real-time format is when your ship is about five quadrants away from where the action is. However, GATO has a rapid sub deployment feature that will make everything run 10 times faster than normal, including fuel consumption. It's another nice touch that keeps the game from having too many dull spots. If things get really bad, you can send out a Mayday to your subtender, although this should be done only as a last resort. If your subtender is sunk, but you survive, you'll have no way to get repairs made or to take on fresh supplies.

Finally, GATO's 33-page manual is easy to read and understand; the sections are laid out in exactly the order in which you need the information. The manual is written specifically for the ST version, so there is no addendum instructing you to forget something you've already read and replace it with something else. My only complaint about the manual is that there's no drawing or photo of the main screen. That would be helpful especially if, like me, you sit down and read a manual away from the computer before booting up the software.

Should you get hooked on GATO, don't be surprised if your dreams are suddenly filled with the sound of falling depth charges or hissing torpedoes. It's submarine warfare that's quite realistic.

POLYDISK

Polyware_ST
5715 Horning Rd.
Kent, OH 44240
(216) 673-5591
$199.95

CIRCLE 229 ON READER SERVICE CARD

Reviewed by Heidi Brumbaugh

How would you like the speed, power and convenience of a RAMdisk without giving up any of your ST's memory? If so, then read on—the **Polydisk** *might* be just what you're looking for.

continued on next page

ST Product Reviews

The Polydisk is a 4 by 6-1/2 by 1-1/2 inch grey box that plugs into the cartridge slot of your 520 or 1040 ST. To create the RAMdisk, simply use the setup program included with Polydisk to decide how much of the Polydisk's 512K memory you want to use. If you want to make the RAMdisk larger, the setup program will automatically use your ST's RAM to make up the difference. The Polydisk initialization program then sits in the Auto folder of your boot disk, so every time you turn on your ST the RAMdisk is instantly accessable.

The usefulness of an external RAMdisk can't be understated. You can keep your most commonly-used applications—word processors, databases, etc.—in the Polydisk for speedy access. If you have a single-drive system, the RAMdisk is a convenient medium for file transfer, cutting out tedious disk-swapping. While the Polydisk can't be used as a memory upgrade *per se*, if you're using a RAMdisk anyway it goes a long way toward freeing up your ST's memory for programs and accessories.

Since the Polydisk is an external peripheral, a warm boot (pressing the reset button on the back of the computer without turning off the power) won't erase the files you've stored in the Polydisk. An optional battery will even protect its contents from power surges or blackouts for up to five hours.

The program comes with a print spooler, which can be set up to handle up to 64K of text, as well as a screen off program, which turns off video display if the keyboard or mouse hasn't been accessed for five minutes. Like the 8-bit Atari's attract mode, this utility protects monitors from having images burned onto the screen.

I've used the Polydisk extensively, and haven't discovered any bugs or problems with it. It doesn't take up very much desk space, and if you had wanted to reserve the cartridge slot for a clock, never fear; Polyware_ST makes one that can be piggybacked onto the Polydisk's memory board. Finally, if its other merits don't sell you, the box is still new enough that it makes a great conversation piece: "What *is* that thing on your desk?"

Mi-Print
MichTron
576 S. Telegraph
Pontiac,
Michigan 48053
(313) 334-5700
$29.95
CIRCLE **231** ON READER SERVICE CARD

Reviewed by Sol Guber

Mi-Print is a text printing program for files and data which you've not yet formatted. Mi-Print allows you to use different fonts, modify the line spacing, and even put headers and page numbers when the information is printed. It even allows you to read directories (including hard disks) and print them out in a variety of forms.

Mi-Print is a very friendly program, with GEM drop-down menus allowing you to pick among its many features. The first operation is for customizing the program for a printer. You have the ability to specify the various controls codes needed to change the spacing, fonts, and even the setup codes for each of your printers. This information can be then saved and loaded in as needed. You are allowed as many printer drivers as you like, and you can even make modifications to the print job in the midst of the actual printing. You can do this with a simple fill-in-the-blank style dialog box.

Once you've built and loaded the printer driver, you can then tell the program how you want to print out the data. You can use any of your printer's fonts, determine the four margins and even have a heading on the page. The numbering of the pages can be done automatically. Mi-Print can send text files and directory information to either the printer, the screen, or a disk. If you send first the information to the screen, you can see the spacing and determine the format you want. You are also allowed to select portions of the text to be sent to the printer.

You can also send disk directories to the printer, giving you a hard copy for quick reference. This is the first utility I've seen which allows you to treat hard disks in the same manner as floppy disks; you can finally have a complete listing of the information on your hard disk.

Directory information can be sorted before it is printed out. The sorts include: by date, by name, by size, and by type. The printed information will show the name of the file, the size, and the date generated. The information is also shown following the folder information. You can even indent the file's name every time the program runs into a folder. The last option allowed is called type through. This is for simple typing jobs, outputting the raw text to your printer.

Mi-Print is a useful printing utility. It allows you to format text files quickly and then print them. It allows you to print out your disk directory, including hard disks, and sort the files in various manners. It also allows you to use your printer as a typewriter. Mi-Print is not copy protected. The 10-page manual is really not needed, but it is useful to explain how to speed up several of the options. ■

SOFTWARE LIBRARY

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

DOS COMPATIBILITY: All 8-bit programs published by **Antic** are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—*not* with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789 0123456789

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL −
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL +
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		SHIFT =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	人 CTRL ,		CTRL X
	人 CTRL A		CTRL Y
	人 CTRL B		CTRL Z
	人 CTRL C		ESC SHIFT DELETE
	人 CTRL D		ESC SHIFT INSERT
	人 CTRL E		ESC CTRL TAB
	人 CTRL F		ESC SHIFT TAB
	人 CTRL G		人 CTRL .
	人 CTRL H		人 CTRL ;
	人 CTRL I		人 SHIFT =
	人 CTRL J		ESC CTRL 2
	人 CTRL K		ESC CTRL DELETE
	人 CTRL L		ESC CTRL INSERT
	人 CTRL M		
	人 CTRL N		
	人 CTRL O		
	人 CTRL P		
	人 CTRL Q		
	人 CTRL R		
	人 CTRL S		
	人 CTRL T		
	人 CTRL U		
	人 CTRL V		
	人 CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key. Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key 人 instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL			STANDARD		
		CTRL F	/		/
		CTRL G	\		SHIFT +
		CTRL N	_		SHIFT −
		CTRL R	−		−
		CTRL S	+		+

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME" [RETURN] (Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

tech tips

HANDCAR

Article on page 76

LISTING 2

Don't type the TYPO II Codes!

```
CN 10 REM HANDCAR, LISTING 2
VF 20 REM BY KEVIN D. PACKARD
FJ 30 REM (c) 1985,1987 ANTIC PUBLISHING
TK 35 REM CREATES LINE 2
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "Disk or Cassette?";:POKE 764,25
   5
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "     AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
FX 1000 DATA 105
TG 1010 DATA 0500320690360610341921762041
   43204255064255192064192064192192128255
   048032063035051063016255048
NM 1020 DATA 0162400160482400322550120080
   12011012015004255012052204196204252008
   255003002003002003003001255
MR 1030 DATA 0030012550490512550022550000
   00000000000000000255034058080079075069
   032055053054044083047050053
RC 1040 DATA 0540580660360610340730670680
   73034155
```

three shorter games that pack plenty of punch Article on page 15

RASSILON'S TRIPLE-HEADER

LISTING 1

Don't type the TYPO II Codes!

```
DJ 5 REM ROLLOUT
DK 10 REM BY ROBERT PATTON
PS 20 REM (c)1987, ANTIC PUBLISHING
QD 30 GOSUB 600
QX 40 GOSUB 120:POKE 77,0:T=0:T1=0:T2=0:N
   =0:D1=0:D2=0
YZ 50 IF NSUM=0 THEN GOSUB 590:TROLLS=TRO
   LLS+ROLL:ROLL=0:AVG=TROLLS/GAME:GAME=G
   AME+1:NSUM=55
ZJ 60 AVG=(INT(AVG*1000))/1000:IF GAME>MA
   X THEN GOSUB 750
SP 70 GOTO 40
MB 80 POSITION 10,11:POKE 82,10
TT 90 FOR YY=1 TO 6:FOR XX=1 TO 6:? " ";D
   ICE(XX,YY);" ";:NEXT XX:? :? :NEXT YY:
   POKE 82,0:SUM=0:CARD=0
BA 100 FOR X=2 TO 12:POSITION 30,9+X:? CA
   RD(X);" of ";X;"'s";:SUM=SUM+(X*CARD(X
   )):CARD=CARD+CARD(X):NEXT X
PK 110 MEAN=SUM/CARD:MEAN=(INT(MEAN*100))
   /100:POSITION 30,9:? "Mean=";MEAN;:RET
   URN
UT 120 GOSUB 280
KH 130 POSITION COL,4:? "   ";:GOSUB 270:
   GOSUB 320:COL=3*(D1+D2):IF COL>30 THEN
    COL=30
OJ 140 STK=STICK(0):INC=0
WM 150 IF STK=7 THEN INC=3
KP 160 IF STK=11 THEN INC=-3
MW 170 IF INC THEN POSITION COL,4:? "   "
   ;:GOSUB 260:COL=COL+INC
KD 180 IF COL<3 THEN COL=30
SF 190 IF COL>31 THEN COL=3
IQ 200 POSITION COL,4:? "◢◣◥";
LI 210 IF (STK=15 AND STRIG(0)=0) THEN GO
   SUB 430
OU 220 FOR WAIT=1 TO 10:NEXT WAIT
QJ 230 IF (D1+D2=0 OR NSUM=0) THEN 250
NH 240 GOTO 140
ZI 250 RETURN
DL 260 SOUND 0,28,10,2:FOR WAIT=1 TO 10:N
   EXT WAIT:SOUND 0,0,0,0:RETURN
AG 270 POSITION 5,1:? "ROLL ";ROLL;"  GAM
   E #";GAME;"  AVG=";AVG;"     ";:RETURN
DY 280 POSITION 3,3:FOR X=1 TO 10
QZ 290 IF N(X,0)<>0 THEN ? "■";N(X,0);"■"
   ;
IP 300 IF N(X,0)=0 THEN ? "■■■";
NG 310 NEXT X:? :? :RETURN
OW 320 ROLL=ROLL+1:POSITION 5,1:? "ROLL "
   ;ROLL;" ";
TF 330 FOR X=0 TO 6
YI 340 D1=INT(RND(0)*7):IF D1=0 THEN 340
BA 350 D2=INT(RND(0)*7):IF D2=0 THEN 350
CG 360 POSITION 14,6:? DIE$((D1-1)*27+1,(
   D1-1)*27+27)
DE 370 POSITION 20,6:? DIE$((D2-1)*27+1,(
   D2-1)*27+27)
MD 380 NEXT X
NG 390 CARD(D1+D2)=CARD(D1+D2)+1
IH 400 DICE(D1,D2)=DICE(D1,D2)+1
VQ 410 GOSUB 80
ZE 420 RETURN
FY 430 POSITION COL,4:? "   ";
WB 440 FOR X=1 TO 10
HK 450 IF N(X,1)=COL THEN T=N(X,0)
MA 460 NEXT X
IR 470 T2=T
NJ 480 IF N=0 THEN T1=T
HQ 490 N=N+T:IF N>D1+D2 THEN N=0:RETURN
GM 500 IF N=0 THEN POP :GOTO 130
HL 510 IF N=D1 THEN D1=0:POSITION 14,6:?
   ZAP$:GOSUB 580
EV 520 IF N=D2 THEN D2=0:POSITION 20,6:?
   ZAP$:GOSUB 580
FG 530 IF (N=D1+D2 AND D1+D2<>0) THEN 550
PU 540 GOTO 560
UT 550 POSITION 14,6:? ZAP$:POSITION 20,6
   :? ZAP$:N=T1:GOSUB 580:N=T2:GOSUB 580:
   D1=0:D2=0
VF 560 GOSUB 280
ZP 570 RETURN
RI 580 N(N,0)=0:NSUM=0:SOUND 3,33,14,3:FO
   R X=1 TO 10:NSUM=NSUM+N(X,0):NEXT X:SO
   UND 3,0,0,0:N=0:RETURN
IF 590 FOR X=1 TO 10:N(X,0)=X:N(X,1)=X*3:
   NEXT X:RETURN
DO 600 DIM DIE$(162),ZAP$(27),N(10,1),DIC
   E(6,6),CARD(12)
UV 610 GRAPHICS 0:POKE 752,1:POKE 82,0:PO
   KE 710,98:POKE 712,98:POKE 709,106
QA 620 FOR X=0 TO 12:CARD(X)=0:NEXT X:FOR
    X=0 TO 6:FOR Y=0 TO 6:DICE(X,Y)=0:NEX
   T Y:NEXT X:GAME=1:NSUM=55
CA 630 DIE$(1,27)="□■■■■[↓←←←←←□■◆■[↓←←←←←
   □■■■■□"
HA 640 DIE$(28,54)="□◆■■[↓←←←←←□■■■■[↓←←←←
   ←□■■◆□"
FE 650 DIE$(55,81)="□◆■■[↓←←←←←□■◆■[↓←←←←
   ←□■■◆□"
QA 660 DIE$(82,108)="□◆■◆[↓←←←←←□■■■■[↓←←←
   ←←□◆■◆□"
HW 670 DIE$(109,135)="□◆■◆[↓←←←←←□■◆■[↓←←
   ←←←□◆■◆□"
KY 680 DIE$(136,162)="□◆■◆[↓←←←←←□◆■◆[↓←←
   ←←←□◆■◆□"
DM 690 ZAP$="      ↓←←←←←      ↓←←←←←      "
US 700 POSITION 0,7:? "RASSILON'S":? :? "
    ROLLOUT":POSITION 9,10:? "┌──────────
   ──────────┐"
AD 710 POSITION 9,22:? "└────────────────
   ───┘→↓DIE 1";
GC 720 FOR X=11 TO 21:POSITION 9,X:? "│";
   :POSITION 28,X:? "│";:NEXT X
UW 730 FOR X=1 TO 6:POSITION 7,9+(X*2):?
   X;:POSITION 8+(X*3),23:? X;:NEXT X
PN 740 POSITION 0,16:? "DIE 2";:POSITION
   29,7:? " Dice Sums";:GOSUB 590
CY 750 GOSUB 270:POSITION 3,3:? "  How ma
   ny games do we play     ←←←←";:INPUT MA
   X:GAME=1:IF MAX=0 THEN END
SM 760 IF MAX>10 THEN MAX=10
ZR 770 RETURN
```

LISTING 2

```
UO 5 REM PEGBOARD
DK 10 REM BY ROBERT PATTON
QB 15 REM (c)1987, ANTIC PUBLISHING
RL 20 GOSUB 450
QG 30 GOSUB 330
GW 40 IF P<>79 THEN 30
UV 50 UPC=C:UPR=R:GOSUB 440
QJ 60 GOSUB 330
JP 70 M=M+1:POSITION 0,0:? #6;M
UC 80 IF C=UPC AND R=UPR THEN ? "◘";:M=M-
   1:GOTO 30
GW 90 IF P<>32 OR (ABS(UPC-C)<>2 AND ABS(
   UPR-R)<>2) OR (ABS(UPC-C)=2 AND ABS(UP
   R-R)=2) THEN M=M-1:GOTO 60
AV 100 DNC=C:DNR=R:COLOR 32:PLOT UPC,UPR:
   DRAWTO DNC,DNR:COLOR 79:PLOT DNC,DNR
MB 110 GOSUB 440:L=79:GOTO 30
RZ 120 RESTORE 300
LE 130 TRAP 200:READ CKC,CKR
ML 140 FOR CC=CKC-1 TO CKC+1
SV 150 FOR RR=CKR-1 TO CKR+1
CX 160 LOCATE CC,RR,LL0:LOCATE CC,RR+1,LL
   1:LOCATE CC,RR+2,LL2:LOCATE CC+1,RR,L1
   L:LOCATE CC+2,RR,L2L
MB 170 IF (LL0=79 AND LL1=79 AND LL2=32)
   OR (LL0=79 AND L1L=79 AND L2L=32) THEN
    POP :POP :GOSUB 310:RETURN
ET 180 IF (LL0=32 AND LL1=79 AND LL2=79)
   OR (LL0=32 AND L1L=79 AND L2L=79) THEN
    POP :POP :GOSUB 310:RETURN
IQ 190 NEXT RR:NEXT CC:GOTO 130
TY 200 FOR CC=6 TO 12:FOR RR=6 TO 12:LOCA
   TE CC,RR,LL:SOUND 0,2*CC*RR+LL,10,6
```

```
DF 210 IF LL=79 THEN PEG=PEG+1
SP 220 NEXT RR:NEXT CC:SOUND 0,0,0,0
UI 230 T$="    NOT AN"
PF 240 IF PEG<5 THEN T$="  AVERAGE"
OO 250 IF PEG<3 THEN T$=" EXCELLENT"
GD 260 IF PEG<2 THEN T$="   GENIUS":LOCAT
   E 9,9,X:IF X=79 THEN T$="  A MENSA"
LG 270 POSITION 0,19:? #6;T$;" ATTEMPT":P
   OSITION 0,0:? #6;"FIRE STARTS NEW GAME
   ";
BJ 280 IF STRIG(0)=1 THEN 280
VE 290 RUN
EV 300 DATA 9,7,11,9,9,11,7,9
FC 310 POSITION 0,19:? #6;"you are not do
   ne yet";:? "";
ET 320 FOR X=0 TO 333:NEXT X:POSITION 0,1
   9:? #6;"                    ";:RETURN
VF 330 S=PEEK(632):T=PEEK(644)
KI 340 IF PEEK(H)=5 THEN GOSUB 120
DZ 350 IF PEEK(53279)=6 THEN RUN
TF 360 IF S=15 AND T=0 THEN P=L:RETURN
PE 370 IF S=15 THEN 330
MZ 380 COLOR L:PLOT C,R
JL 390 LC=C:LR=R:LL=L
IM 400 C=C+((S=5)+(S=6)+(S=7))-((S=9)+(S=
   10)+(S=11)):R=R+((S=5)+(S=9)+(S=13))-(
   (S=6)+(S=10)+(S=14))
TF 410 LOCATE C,R,L:IF L=131 THEN C=LC:R=
   LR:L=LL
TN 420 COLOR 207:PLOT C,R
NQ 430 GOTO 330
YU 440 FOR W=0 TO 50:NEXT W:SOUND 0,30,10
   ,10:W=2^2:SOUND 0,0,0,0:RETURN
PV 450 DIM T$(20):GRAPHICS 1:POKE 752,1:H
   =53279
RM 460 FOR C=8 TO 10:FOR R=6 TO 12:POSITI
   ON C,R:? #6;"O";:NEXT R:NEXT C
RO 470 FOR C=6 TO 12:FOR R=8 TO 10:POSITI
   ON C,R:? #6;"O";:NEXT R:NEXT C
HS 480 GOSUB 490:C=9:R=9:L=32:RETURN
KG 490 COLOR 131:PLOT 7,5
KE 500 DRAWTO 11,5:DRAWTO 11,7:DRAWTO 13,
   7:DRAWTO 13,11:DRAWTO 11,11:DRAWTO 11,
   13:DRAWTO 7,13:DRAWTO 7,11
OH 510 DRAWTO 5,11:DRAWTO 5,7:DRAWTO 7,7:
   DRAWTO 7,5
MV 520 ? "  PEGBOARD by RASSILON  ":? "
   "
NQ 530 ? "  Move STICK to remove first PE
   G":? "      Press <SELECT> for SCORE";:
   RETURN
```

LISTING 3

```
AM 5 REM BOUNCE
DK 10 REM BY ROBERT PATTON
QB 15 REM (c)1987, ANTIC PUBLISHING
ML 20 GOSUB 280:GOSUB 270:GOSUB 140
GB 30 S=PEEK(N632):T=PEEK(N644):IF BR<>N3
   9 THEN COLOR N0:PLOT BC,BR
GM 40 BC=BC+DBC:IF BC<N20 OR BC>N59 THEN
   DBC=DBC*-N1:BC=BC+DBC
XR 50 BR=BR+DBR:IF BR<N0 THEN DBR=DBR*-N1
   :BR=BR+DBR
WY 60 LOCATE BC,BR,L:IF L<>N0 THEN DBR=DB
   R*-N1
WQ 70 IF BR=N39 AND L=N3 THEN DBC=BC-PC
UB 80 IF BR=N39 AND L<>N3 THEN GOSUB 140
OM 90 IF BR<>N39 THEN COLOR N1:PLOT BC,BR
VO 100 IF S=N7 THEN PC=PC+N1*(PC<N57):COL
   OR N3:PLOT PC+N2,N39:COLOR N0:PLOT PC-
   N3*(PC>N22),N39
EV 110 IF T=0 THEN T=1:GOTO 100
NS 120 IF S=N11 THEN PC=PC-N1*(PC>N22):CO
   LOR N3:PLOT PC-N2,N39:COLOR N0:PLOT PC
   +N3*(PC<N57),N39
QC 130 GOTO 30
EB 140 B=B-N1:BR=FR:POKE 77,0:IF B=N0 THE
   N 330
SD 150 GOSUB 400
YI 160 BC=PEEK(53770):IF BC>59 OR BC<20 T
   HEN 160
HV 170 DBR=N1:DBC=N1
CL 180 IF PEEK(53770)<N128 THEN DBC=DBC*-
   N1
SG 190 COLOR N1:PLOT BC,BR
FH 200 IF PEEK(53279)=N5 THEN GOSUB 230
ZO 210 IF STRIG(0)<>N0 THEN 200
ZC 220 RETURN
RR 230 GOSUB 400:SC=N240:FOR R=FR-N6 TO F
   R-N1:FOR C=N20 TO N59
QO 240 LOCATE C,R,L:IF L<>N0 THEN SC=SC-N
   1:SOUND 0,SC,10,2:SOUND 1,SC+1,10,2
YM 250 NEXT C:NEXT R:? SC;"   ";:IF SC=N2
   40 THEN 350
CX 260 SOUND 0,0,0,0:SOUND 1,0,0,0:RETURN
FH 270 FOR K=N1 TO N3:FOR FR=FR TO FR+N1:
   COLOR K:PLOT N20,FR:DRAWTO N59,FR:NEXT
    FR:NEXT K:RETURN
KD 280 GRAPHICS 5:POKE 752,1
KH 290 N0=0:N1=1:N2=2:N3=3:N4=4:N5=5:N6=6
   :N7=7:N8=8:N9=9:N10=10:N11=11:N12=12:N
   13=13:N14=14:N15=15:N16=16:N17=17
TR 300 N20=20:N22=22:N26=26:N39=39:N50=50
   :N57=57:N59=59:N128=128:N240=240:N632=
   632:N644=644:N732=732
ML 310 COLOR N3:FOR C=N16 TO 19:PLOT C,N0
   :DRAWTO C,N39:NEXT C:FOR C=60 TO 62:PL
   OT C,N0:DRAWTO C,N39:NEXT C
XN 320 FR=N2:B=N26:COLOR N3:PC=N39:FOR X=
   (-N2) TO N2:PLOT PC+X,N39:NEXT X:RETUR
   N
ML 330 ? "":? :? "  GAME OVER ":GOSUB 3
   80:? "     Your Score was ";:GOSUB 230
   :? :IF SC=N240 THEN 350
OY 340 GOTO 360
RY 350 ? "":? :? "  YOU WON!! ":? :GOSU
   B 380
VG 360 IF PEEK(N644)<>0 THEN 360
VB 370 RUN
OK 380 ? " PRESS FIRE TO PLAY AGAIN":RET
   URN
XB 400 ? "     BOUNCE by Rassilon (c) 198
   7 ":? " Press FIRE to SERVE BALL ";26
   -B
DL 410 ? "Press SELECT to CALC SCORE = "
   ;:RETURN
```

more uses for your atari mailing labels

ADDRESS BOOK

Article on page 18

LISTING 1

Don't type the TYPO II Codes!

```
WD 5 REM MIGHTY MAILER
MV 10 REM BY PHILIP BATE, Ph.D.
VD 15 REM EXTENSION ROUTINES BY BOB KLEME
   NC
GZ 20 REM (c) 1987, ANTIC PUBLISHING
CC 30 FILELEN=FRE(0)-1100:DIM FILE$(FILEL
   EN)
ZS 40 DIM SUB$(255),RAND$(260),FILENAME$(
   14),EOL$(2),IO$(7),MSG1$(28),MSG2$(24)
   ,MSG3$(146)
DB 41 DIM AT$(1):AT$="@"
GU 60 MSG3$="Press 'E' to print envelopes
     or 'A' to print addressee on letter,
   or 'T' to print addressee & @ data"
WY 61 MSG3$(LEN(MSG3$)+1)=".
        BE SURE PRINTER IS READY"
DJ 370 START=RAND+2:GOSUB 1120:GOSUB 1191
XK 410 IF A=32 OR A=65 OR A=69 OR A=84 TH
   EN 370
OL 1040 IF A=69 OR A=65 OR A=84 THEN GOSU
   B 1220
XA 1191 AT=0:AT=USR(ML,ADR(FILE$),LEN(FIL
   E$),ADR(AT$),LEN(AT$),START)
JT 1192 IF AT=0 OR AT>RAND THEN AT=RAND
JC 1230 ? CHR$(27);CHR$(195);"I/O ERROR #
   ";PEEK(195):TRAP 40000:CLOSE #4:FOR D=
   1 TO 250:NEXT D:GOTO 130
WD 1240 IF A=69 THEN ? #4;CHR$(27);"M";CH
   R$(40);FILE$(START,AT-1):? #4;CHR$(27)
   ;"M";CHR$(0):CLOSE #4:RETURN
LO 1250 IF A=65 THEN PRINT #4;CHR$(27);"M
   ";CHR$(10);FILE$(START,AT-1):? #4;CHR$
   (27);"M";CHR$(0):CLOSE #4:RETURN
AB 1251 IF A=84 THEN PRINT #4;CHR$(27);"M
   ";CHR$(10);FILE$(START,RAND+1);CHR$(27
   );"M";CHR$(0):CLOSE #4:RETURN
```

TOPSHELF

Article on page 8

LISTING 1

Don't type the TYPO II Codes!

```
RR 10 REM TOPSHELF
QQ 12 REM BY LESTER BLOCK
PZ 14 REM (c)1987, ANTIC PUBLISHING
JF 20 GOTO 5000
KY 25 POKE 77,0:POKE 16,112:POKE 53774,112:RETURN
BM 30 POSITION 1,0:? BL$:POSITION 1,0:RETURN
DK 40 POSITION 1,1:? BL$:POSITION 1,1:RETURN
IN 50 IF  NOT ELEM THEN GOSUB INP:GOSUB TOP:? "NO DATA ON FILE":GOTO MENU
ZW 60 RETURN
WX 70 FOR F=1 TO FLD*(FLD>0)+23*(FLD=0):POKE OFFSET+F*2+2,12:NEXT F:RETURN
LF 80 FOR F=FLD+1 TO 23:POKE OFFSET+F*2+2,6:NEXT F:RETURN
TC 99 REM INPUT ROUTINE
DJ 100 CLOSE #2:OPEN #2,4,0,"K:":COL=PEEK(85):ROW=PEEK(84)
HW 110 ? CUR$;:FOR DLAY=1 TO 15
QY 115 GOSUB 25:IF PEEK(85)=ILEN+COL AND MODE=1 THEN ? CUR$(1,1);
RN 117 IF PEEK(764)<>255 THEN 130
JE 120 NEXT DLAY:CK=(CK=0):POKE 752,CK:GOTO 110
LV 130 GET #2,K:IF K<>16 THEN 145
HI 135 TRAP 140:C=PEEK(85):R=PEEK(84):FOR DL=3 TO 22:POSITION 1,X:INPUT #5,A$:LPRINT A$:NEXT DL
ZA 140 TRAP 1015:POSITION C,R:GOTO 120
BH 145 IF K=27 THEN GOSUB 70:? CL$:GOTO MENU
QJ 148 IF  NOT MODE THEN RETURN
XB 150 IF K=155 THEN POSITION COL,ROW:INPUT #5;B$:GOTO 170
KP 155 IF K=29 OR K=28 OR K=254 THEN 120
RX 160 ? CHR$(K);:GOTO 120
HS 170 IF LEN(B$)=0 THEN B$=BL$(1,25)
ZN 180 RETURN
GG 199 REM OK
EJ 200 GOSUB TOP:? "IS THIS CORRECT (Y/N) ";:MODE=0:GOSUB INP
DK 210 IF K<>78 AND K<>89 THEN 200
ZC 220 RETURN
QL 230 FOR DLAY=1 TO 500:NEXT DLAY:RETURN
CU 239 REM SHOW TITLES
BW 240 GOSUB 70:POKE 752,1:POKE 82,1:? CL$:POSITION 1,3:FOR X=1 TO FLD:? FIELD$(X*8-7,X*8);":":NEXT X:RETURN
DO 250 SOUND 0,50,10,10:Z=2^2:SOUND 0,0,0,0:RETURN
PS 260 I=1:MODE=0
TA 265 GOSUB SEC:? FIELD$(I*8-7,I*8);":";:POKE OFFSET+I*2+2,44:GOSUB INP
FJ 270 C=(K=43)-(K=45):IF K=155 THEN POKE OFFSET+I*2+2,12:RETURN
OH 280 POKE OFFSET+I*2+2,12:I=I+C:IF I<1 OR I>FLD THEN C=-C:I=I+C
RF 290 GOTO 265
EM 299 REM SEE NAMES
GE 300 GOSUB 50:GOSUB 240:GOSUB TOP:? "LOOK FOR..:+:-:RETURN ENTERS"
TV 310 GOSUB 260
UR 320 POKE OFFSET+I*2+2,88:START=ST(I):GOSUB TOP:? "ENTER NAME TO FIND ";
AD 325 GOSUB SEC:? FIELD$(I*8-7,I*8);":";:MODE=1:ILEN=LLEN(I):GOSUB INP:GOSUB OK:IF K=78 THEN 300
LB 330 GOSUB 70:R=LEN(B$):IF R<1 THEN GOSUB BEEP:GOTO 330
CD 335 IF B$(R,R)=CHR$(34) THEN B$(R)=" ":B$=B$(2)
XJ 340 GOSUB SEC:? "LOOKING FOR ";B$;:S=1:NUM=0
ZG 345 D=USR(ADR(FIND$),ADR(BUFFER$)+S*RECLEN-RECLEN+START-1,R,ELEM,S-1,ADR(B$),RECLEN)
WA 350 S=PEEK(1786)+256*PEEK(1787)
OP 360 IF S<=ELEM THEN RECORD$=BUFFER$(S*RECLEN-RECLEN+1):NUM=NUM+1:GOSUB 1100:S=S+1:GOTO 345
KX 370 GOSUB TOP:IF NUM THEN ? "END OF DATA":GOTO MENU
PK 380 GOSUB TOP:IF  NOT NUM THEN ? "NO DATA FOUND":GOTO MENU
RU 399 REM ADD DATA
DT 400 ? CL$:IF  NOT FLD THEN GOSUB BEEP:GOSUB TOP:? "FILE NOT CREATED":GOTO MENU
DC 402 R=INT((MEM-LNG)/RECLEN):IF R<3 THEN GOSUB BEEP:GOSUB TOP:? "IMPORTANT!..ROOM FOR ";R;" MORE FILES";
FA 403 GOSUB DELAY
TW 404 S=ELEM+1:GOSUB 240:FOR I=1 TO FLD:IF TYPE(I)=2 THEN 430
NM 405 IF TYPE(I)=3 THEN B$=FUN$(I*20-19,I*20):GOTO 425
HE 408 GOSUB TOP:? "ENTER DATA FOR ";FIELD$(I*8-7,I*8);:IF TYPE(I)=1 THEN ? " NUMBERS ONLY"
QC 410 POKE OFFSET+I*2+2,44:MODE=1
VO 420 GOSUB SEC:? FIELD$(I*8-7,I*8);":";BL$(1,LLEN(I));":";:POSITION 10,1:ILEN=LLEN(I):GOSUB INP
XH 425 POSITION 10,I+2:? B$
RV 430 POKE OFFSET+I*2+2,12:NEXT I:GOSUB OK:IF K=78 THEN 600
CJ 440 GOSUB 1700:BUFFER$(LNG)=RECORD$:ELEM=ELEM+1:LNG=LNG+RECLEN
TF 450 GOSUB TOP:? "DATA ENTERED":GOTO MENU
RH 460 BUFFER$(LNG)=RECORD$:ELEM=ELEM+1:LNG=LNG+RECLEN:GOTO MENU
UD 499 REM SAVE
KG 500 GOSUB TOP:? "NAME OF FILE":GOSUB SEC:? "SAVE>";FILE$;:POKE 85,6:MODE=1:ILEN=15:GOSUB INP
LQ 505 FOR X=1 TO FLD:DAT$(X*3-2)=CHR$(LLEN(X))
YW 507 DAT$(X*3-1)=CHR$(DEC(X)):DAT$(X*3)=CHR$(TYPE(X)):NEXT X
AE 510 A$="D:":A$(3)=B$:GOSUB SEC:? "SAVE>";A$:GOSUB OK:IF K=78 THEN 500
FS 512 TRAP 520:CLOSE #2:OPEN #2,4,0,A$:CLOSE #2:GOSUB BEEP:GOSUB BEEP:GOSUB SEC:? "REPLACE>>";A$:GOSUB OK
IM 515 IF K=78 THEN GOSUB TOP:? A$;" NOT SAVED":GOTO MENU
HZ 520 TRAP 1015:SPACE=LNG+500:CLOSE #2:OPEN #2,8,0,A$:FILE$=B$:ADDR=ADR(DAT$)
JO 530 ? #2;ELEM;EOL$;LNG;EOL$;RECLEN;EOL$;FLD;EOL$;FIELD$
LX 550 OP=8:GOSUB 900:GOSUB TOP:? "FILE SAVED":GOTO MENU
TQ 559 REM ERASE FILE
JF 560 ? CL$:GOSUB SEC:? "ERASE CURRENT FILE!":GOSUB OK:IF K=78 THEN GOSUB TOP:? "FILE INTACT":GOTO MENU
ER 570 LNG=1:ELEM=0:GOSUB TOP:? "FILE ERASED FROM MEMORY":GOTO MENU
IR 600 GOSUB TOP:? "CORRECT ENTRIES:+:-:RETURN ENTERS"
SB 610 GOSUB 260:POKE OFFSET+I*2+2,88
YF 630 POSITION 10,I+2:INPUT #5,B$:IF TYPE(I)=1 THEN GOSUB 1800
SB 633 POSITION 10,I+2:? BL$(1,25):GOSUB SEC
FT 635 ? FIELD$(I*8-7,I*8);":";B$:GOSUB TOP:? "MAKE CORRECTION":POSITION 10,1
LL 640 ILEN=LLEN(I):MODE=1:GOSUB INP:B$(LEN(B$)+1)=BL$:B$=B$(1,LLEN(I)):POKE OFFSET+(I*2-2),12
QG 650 TMP=I:POSITION 10,I+2:? B$:GOSUB OK:IF K=78 THEN GOSUB 70:GOTO 600
AZ 660 GOSUB 1700:BUFFER$(S*RECLEN-RECLEN+1,S*RECLEN)=RECORD$(1,RECLEN)
ML 665 POKE OFFSET+TMP*2+2,12:IF S>ELEM THEN ELEM=S:LNG=LNG+RECLEN
US 670 GOSUB TOP:? "CORRECTIONS MADE, DATA ENTERED":GOTO MENU
ZQ 699 REM EXIT
BP 700 GOSUB SEC:? "EXIT...ARE YOU SURE":GOSUB OK:IF K=78 THEN ? CL$:GOTO MENU
KO 710 GRAPHICS 0:END
AN 749 REM BROWSE
IJ 750 GOSUB 50:GOSUB 240:GOSUB TOP:? "BROWSE":GOSUB SEC:? "FIRST:LAST:MIDDLE..SELECT ONE";:MODE=0:F=1
LB 760 GOSUB INP:C=(K=70)+ELEM*(K=76)+INT(ELEM/2)*(K=77):IF  NOT C THEN GOSUB BEEP:GOTO 760
DQ 770 S=C:IF C=ELEM THEN F=-F
PW 775 RECORD$=BUFFER$(S*RECLEN-RECLEN+1)
PN 780 GOSUB 1100:S=S+F:IF S>ELEM OR S<1 THEN 370
TT 790 GOTO 775
NW 799 REM LOAD
ZK 800 A$="D:":GOSUB TOP:? "Enter Filename":GOSUB SEC:? "LOAD>";:COL=PEEK(85):?
```

```
   FILE$;:POKE 85,COL
EM 810 MODE=1:ILEN=15:GOSUB INP:A$(3)=B$:
   GOSUB SEC:? "LOAD>";A$:GOSUB OK:IF K=7
   8 THEN 800
AV 820 FILE$=B$:OP=4:ADDR=ADR(DAT$):TRAP
   1015:CLOSE #2:OPEN #2,4,0,A$:SPACE=MEM
   :RLEN=1
BD 830 INPUT #2,ELEM,LNG,RECLEN,FLD,FIELD
   $
DQ 840 GOSUB 900:RL=1:FOR X=1 TO FLD:ST(X
   )=RL:A=ASC(DAT$(X*3-2)):LLEN(X)=A:RL=R
   L+A:ED(X)=RL-1
SS 850 DEC(X)=ASC(DAT$(X*3-1)):TYPE(X)=AS
   C(DAT$(X*3)):NEXT X
AE 860 GOSUB TOP:? "File Loaded":GOSUB 80
   :GOSUB 70:GOTO MENU
QU 900 REM
ZJ 960 IOCB=2:CMD=7*(OP=4)+11*(OP=8):IOCB
   X=IOCB*16
CZ 970 ICCOM=834+IOCBX:ICSTA=835+IOCBX:IC
   BAL=836+IOCBX:ICBAH=837+IOCBX
DU 975 ICBLL=840+IOCBX:ICBLH=841+IOCBX:TM
   P=ADDR:GOSUB 1020
FV 985 IF OP=4 THEN BUFFER$=BL$:BUFFER$(M
   EM)=BUFFER$:BUFFER$(2)=BUFFER$:DAT$=BU
   FFER$:FUN$=BUFFER$
JF 990 POKE ICBAL,LO:POKE ICBAH,HI:TMP=SP
   ACE:GOSUB 1020
JP 995 POKE ICBLL,LO:POKE ICBLH,HI:POKE I
   CCOM,CMD:D=USR(ADR(CIO$),IOCBX)
ZE 1000 CLOSE #2:? CL$:STAT=PEEK(ICSTA):I
   F STAT<>1 AND STAT<>136 THEN POKE 195,
   STAT:GOTO 1015
AC 1010 RETURN
JO 1015 GOSUB BEEP:GOSUB TOP:? "I/O ERROR
   #";PEEK(195);:GOTO MENU
IB 1020 HI=INT(TMP/256):LO=TMP-HI*256:RET
   URN
WC 1099 REM SHOW DATA
AV 1100 POKE 82,10:POKE 752,1:POSITION 10
   ,3:FOR X=1 TO FLD:? RECORD$(ST(X),ED(X
   )):NEXT X
SZ 1110 POKE 82,1:GOSUB TOP:? "SELECT ITE
   M":GOSUB SEC:? "CORRECT:ERASE:+:-:SPAC
   E CONT:ESC";
AD 1120 MODE=0:GOSUB INP:C=(K=67)+2*(K=69
   )+3*(K=43)+4*(K=45)+5*(K=32):IF NOT C
   THEN GOSUB BEEP:GOTO 1120
WT 1130 ON C GOTO 600,1140,1250,1250,1290
DB 1140 GOSUB SEC:? "ERASE THIS RECORD":G
   OSUB OK:IF K=78 THEN GOSUB TOP:? "RECO
   RD NOT ERASED":GOTO MENU
KA 1150 BUFFER$(S*RECLEN-RECLEN+1)=BUFFER
   $(S*RECLEN+1)
DZ 1160 LNG=LNG-RECLEN:ELEM=ELEM-1
ES 1170 GOSUB TOP:? "RECORD ERASED":GOTO
   MENU
HB 1249 REM VERT
KX 1250 V=(C=3)-(C=4):S=S+V
RJ 1260 IF S>ELEM THEN S=ELEM:GOSUB BEEP:
   GOSUB TOP:? "TOP OF FILE";:GOTO 1120
SQ 1270 IF S<1 THEN S=1:GOSUB BEEP:GOSUB
   TOP:? "BOTTOM OF FILE";:GOTO 1120
DU 1280 RECORD$=BUFFER$(S*RECLEN-RECLEN+1
   ):GOTO 1100
BE 1290 RETURN
KS 1299 REM SORT
GN 1300 GOSUB 50:GOSUB 240:GOSUB TOP:? "S
   ORT USING FIELD (+:-:RETURN ENTERS)":G
   OSUB 260:POKE OFFSET+I*2+2,88
DG 1310 START=ST(I):GOSUB SEC:? "SORT ON
   ";FIELD$(I*8-7,I*8):GOSUB OK:IF K<>89
   THEN 1300
QK 1320 GOSUB 70:? CL$:GOSUB SEC:? "SORTI
   NG":? :?
OF 1330 FOR X=1 TO ELEM-1:D=USR(ADR(SORT$
   ),ADR(BUFFER$)+X*RECLEN-RECLEN+START-1
   ,LLEN(I),X,ELEM,RECLEN)
WR 1340 S=PEEK(1788)+256*PEEK(1789):IF S>
   ELEM THEN 1380
VB 1350 RECORD$=BUFFER$(S*RECLEN-RECLEN+1
   ,S*RECLEN)
VC 1360 BUFFER$(S*RECLEN-RECLEN+1,S*RECLE
   N)=BUFFER$(X*RECLEN-RECLEN+1,X*RECLEN)
AX 1370 BUFFER$(X*RECLEN-RECLEN+1,X*RECLE
   N)=RECORD$
HQ 1380 ? ".";:NEXT X:? CL$:GOSUB TOP:? "
   Sort Complete":GOTO MENU
SF 1390 GOTO 1360
TK 1399 REM FIND
HM 1400 GOSUB 50:GOSUB 240:GOSUB TOP:? "F
   IND..+:-:RETURN ENTERS":GOSUB 260
NY 1410 GOSUB TOP:? "Enter name to look f
   or":GOSUB SEC:? FIELD$(I*8-7,I*8);":";
GM 1420 MODE=1:ILEN=LLEN(I):GOSUB INP:GOS
   UB OK:IF K=78 THEN 1400
SL 1425 START=ST(I):R=LEN(B$):IF B$(R,R)=
   CHR$(34) THEN B$(R)=" ":B$=B$(2)
TW 1430 GOSUB TOP:? "Looking for ";B$;:NU
   M=0:ADDR=ADR(DAT$):S=1
XH 1440 D=USR(ADR(FIND$),ADR(BUFFER$)+S*R
   ECLEN-RECLEN+START-1,R,ELEM,S-1,ADR(B$
   ),RECLEN)
ZY 1445 S=PEEK(1786)+256*PEEK(1787):IF S>
   ELEM THEN 1455
VJ 1450 TMP=S:GOSUB 1020:POKE ADDR+NUM,LO
   :POKE ADDR+NUM+1,HI:NUM=NUM+2:S=S+1:GO
   TO 1440
QJ 1455 ? CL$:IF NOT NUM THEN GOSUB TOP:
   ? "No Matching Data Found":GOTO MENU
BM 1460 GOSUB 240:GOSUB TOP:? NUM/2;" Fil
   es found. Enter disposition":GOSUB SEC
EQ 1470 ? "Display to: Screen:Printer:Dis
   k";:MODE=0:GOSUB INP:TRAP 1015
SX 1480 C=(K=83)+2*(K=80)+3*(K=68):IF NO
   T C THEN GOSUB BEEP:GOTO 1460
YJ 1490 IF C<>3 THEN 1530
WM 1500 GOSUB TOP:? "Enter filename":GOSU
   B SEC:? "FILENAME:":POSITION 10,1:MODE
   =1:A$="D:"
SW 1505 ILEN=15:GOSUB INP:GOSUB OK:IF K=7
   8 THEN 1460
OZ 1508 A$(3)=B$
OE 1510 GOSUB TOP:? "ENTER TYPE OF TRANSF
   ER":GOSUB SEC:? "MOVE AS:DATA:TEXT>";:
   MODE=1:ILEN=1:GOSUB INP
EH 1512 GOSUB OK:IF K=78 THEN 1500
HF 1515 TRAP 1015:CLOSE #3:OPEN #3,8,0,A$
   :IF B$="T" THEN 1530
TT 1520 RECORD$=DAT$:FOR X=1 TO FLD:DAT$(
   X*3-2)=CHR$(LLEN(X)):DAT$(X*3-1)=CHR$(
   DEC(X))
XE 1523 DAT$(X*3)=CHR$(TYPE(X)):NEXT X
YD 1524 IF LEN(DAT$)<100 THEN DAT$(LEN(DA
   T$)+1)=BL$:GOTO 1524
JT 1525 IF LEN(FUN$)<400 THEN FUN$(LEN(FU
   N$)+1)=FUN$:GOTO 1525
TB 1527 ? #3;NUM/2;EOL$;(NUM/2)*RECLEN+1;
   EOL$;RECLEN;EOL$;FLD;EOL$;FIELD$;EOL$;
   DAT$;
XI 1529 ? #3;FUN$;:DAT$=RECORD$
MW 1530 FOR X=0 TO NUM-2 STEP 2:S=PEEK(AD
   DR+X)+256*PEEK(ADDR+X+1)
EU 1535 RECORD$=BUFFER$(S*RECLEN-RECLEN+1
   ):FOR D=1 TO FLD:POSITION 10,D+2:? REC
   ORD$(ST(D),ED(D))
CE 1540 IF C=3 THEN ? #3;RECORD$(ST(D),ED
   (D))
TH 1550 IF C=2 THEN LPRINT FIELD$(D*8-7,D
   *8);":";RECORD$(ST(D),ED(D))
CO 1560 NEXT D:IF C=2 THEN LPRINT
FK 1570 NEXT X:CLOSE #3:GOSUB TOP:? "DISP
   OSITION OF DATA COMPLETE":GOTO MENU
JN 1599 REM DIRECTORY
UH 1600 ? CL$:GOSUB TOP:? "DIRECTORY":GOS
   UB SEC:? "DRIVE #:";
MT 1610 MODE=0:GOSUB INP:TRAP 1015:A=K-48
PV 1620 A$="D":A$(2)=STR$(A):A$(3)=":*.*"
YX 1640 POKE 752,1:CLOSE #2:OPEN #2,6,0,A
   $:V=0:TRAP 1670
EC 1650 INPUT #2;A$:POSITION 1+19*(V/2=IN
   T(V/2)),4+INT(V/2):? A$
GR 1660 V=V+1:GOTO 1650
US 1670 GOSUB TOP:? "All Files Listed":TR
   AP 1015:GOTO MENU
SC 1680 TRAP 40000:GOSUB TOP:? "Disk File
   s Listed":GOTO MENU
OX 1699 REM PUT DATA INTO RECORD$
QG 1700 POKE 752,1:FOR I=1 TO FLD:POSITIO
   N 10,I+2:INPUT #5,B$
ZK 1702 DEC=DEC(I):DC=1:IF NOT DEC THEN
   1710
JV 1705 FOR X=1 TO DEC:DC=DC*10:NEXT X
WT 1710 IF TYPE(I)=0 OR TYPE(I)=3 THEN 19
   00
LC 1720 IF TYPE(I)=2 THEN 1750
QI 1730 TRAP 1735:A=VAL(B$):TRAP 40000:GO
   TO 1740
RQ 1735 A=0:GOTO 1745
UM 1740 IF DEC(I)=0 THEN A=INT(A+0.5):POS
   ITION 10,I+2:? A:GOTO 1900
YT 1742 B$=STR$(A*DC):L=LEN(B$)
IG 1745 IF A=0 THEN B$=ZERO$(1,DEC+1):L=L
   EN(B$)
PB 1748 GOSUB 1820:GOTO 1895
NG 1750 A$=FUN$(I*20-19):FC=0:F=1:CN=0:PO
   SITION 10,I+2:? BL$(1,28)
YK 1760 IF A$(F,F)<="9" AND A$(F,F)>="0"
   THEN CN=CN*10+VAL(A$(F,F)):F=F+1:GOTO
   1760
```

continued on next page

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TH 1765 TRAP 1767:IF CN THEN B$=RECORD$(S
   T(CN),ED(CN)):GOSUB 1800:A=VAL(B$):IF
   NOT FC THEN B=A
UY 1766 IF CN THEN 1770
AT 1767 GOSUB BEEP:POSITION 10,I+2:? "err
   or":GOTO 1900
KY 1770 FC=FC+1:IF FC=2 THEN ON C GOSUB 1
   880,1881,1882,1883:B=TOT:FC=1
UI 1780 C=(A$(F,F)="+")+2*(A$(F,F)="-")+3
   *(A$(F,F)="*")+4*(A$(F,F)="/"):IF  NOT
   C THEN 1890
MA 1790 F=F+1:CN=0:GOTO 1760
GF 1800 FOR Z=1 TO LEN(B$):IF B$(Z,Z)=" "
   THEN NEXT Z:RETURN
SM 1810 POP :B$=B$(Z):RETURN
UI 1820 IF L>LLEN(I) THEN RETURN
HJ 1825 A$=BL$:L=LEN(B$):A$(LLEN(I)-L)=B$
   :B$=A$:L=LEN(B$):RETURN
BK 1880 TOT=B+A:RETURN
CK 1881 TOT=B-A:RETURN
BH 1882 TOT=B*A:RETURN
DO 1883 TOT=B/A:RETURN
NF 1890 B$=STR$(INT(B*DC)):L=LEN(B$):IF V
   AL(B$)=0 THEN B$=ZERO$(1,DEC+1):L=DEC+
   1
XI 1892 IF L<DEC+1 THEN A$=ZERO$:A$(2)=B$
   :B$=A$:L=L+1:GOTO 1892
SN 1895 POSITION 10,I+2:? B$(1,L-DEC);:IF
   DEC THEN ? ".";B$(L-DEC+1);
VT 1897 IF L>LLEN(I) THEN ? "*"
VZ 1900 POSITION 10,I+2:INPUT #5,B$:IF LE
   N(B$)<LLEN(I) THEN B$(LEN(B$)+1)=BL$
CX 1910 RECORD$(ST(I),ED(I))=B$(1,LLEN(I)
   ):NEXT I:RETURN
NW 2099 REM CREATE FILE
QC 2100 TMP=FLD:FLD=0:GOSUB 80:FLD=TMP:FN
   O=0:? CL$:IF  NOT FLD THEN 2115
JT 2102 FOR X=1 TO FLD:POSITION 1,X+2:? X
   :POSITION 5,X+2:B$=FIELD$(X*8-7,X*8)
AY 2103 GOSUB 1800
QR 2104 ? B$:POSITION 16,X+2:? LLEN(X)-DE
   C(X)-(DEC(X)>0)
WI 2105 POSITION 27,X+2:C=TYPE(X):IF  NOT
   C THEN ? "C":GOTO 2109
QV 2106 IF C=1 THEN ? "N":GOTO 2109
KY 2107 IF C=2 THEN ? "F":GOTO 2109
XL 2108 ? "S"
FD 2109 POSITION 37,X+2:IF C=1 OR C=2 THE
   N ? DEC(X)
LE 2110 NEXT X
BG 2115 MODE=1:GOSUB SEC:? "NO..TITLE...L
   ENGTH..TYPE(C/N/F/S)..DEC"
HB 2120 GOSUB TOP:? "Enter blank title to
    end"
HN 2130 POSITION 1,FNO+3:? FNO+1;:POSITIO
   N 5,FNO+3:ILEN=8:GOSUB INP:IF LEN(B$)=
   1 THEN B$(2)=" "
MO 2135 GOSUB TOP:IF B$(1,2)="  " THEN 21
   70
VM 2140 POSITION 16,FNO+3:ILEN=2:GOSUB IN
   P:POSITION 27,FNO+3:ILEN=1:GOSUB INP
WZ 2150 IF B$(1,1)<>"C" AND B$(1,1)<>"S"
   THEN POSITION 37,FNO+3:GOSUB INP
UV 2160 FNO=FNO+1:IF FNO<20 THEN 2120
EB 2170 GOSUB SEC:? FNO;" FIELDS CREATED"
IV 2180 GOSUB OK:IF K=78 THEN GOSUB TOP:?
   "CORRECT AND RE-ENTER":GOSUB DELAY:FN
   O=0:GOTO 2115
TK 2190 RLEN=1:FOR X=1 TO FNO:POKE OFFSET
   +X*2+2,44:POSITION 5,X+2:INPUT #5,B$:A
   $=B$(1,8):FOR D=8 TO 1 STEP -1
BD 2195 IF A$(D,D)=" " THEN NEXT D
IP 2197 POP :A$=A$(1,D):FIELD$(X*8-7)=BL$
   :FIELD$(X*8-7+(8-LEN(A$)))=A$:FIELD$(L
   EN(FIELD$)+1)=BL$
DZ 2200 V=0:TRAP 2210:A=VAL(B$(12,13)):A$
   =B$(23,23):IF A$="F" OR A$="N" THEN TR
   AP 2290:V=VAL(B$(33,33)):A=A+V+1
HY 2203 IF A>25 THEN GOSUB BEEP:GOSUB TOP
   :? "FIELD LENGTH NO MORE THAN 25 TOTAL
   ":GOSUB DELAY:FNO=X-1:GOTO 2115
HG 2205 ST(X)=RLEN:LLEN(X)=A:RLEN=RLEN+A:
   ED(X)=RLEN-1:DEC(X)=V:TRAP 40000:GOTO
   2220
YB 2210 GOSUB BEEP:GOSUB SEC:? "ERROR IN
   LENGTH OF FIELD..RE-ENTER";:FNO=X-1:MO
   DE=1:GOSUB DELAY:GOTO 2115
AH 2220 T=(B$(23,23)="C")+2*(B$(23,23)="N
   ")+3*(B$(23,23)="F")+4*(B$(23,23)="S")
   :IF T THEN 2240
QX 2230 GOSUB BEEP:GOSUB SEC:? "UNABLE TO
    INTERPRET TYPE..RE-ENTER";:GOSUB DELA
   Y:FNO=X-1:GOTO 2115
SK 2240 T=T-1:TYPE(X)=T:IF T=1 THEN 2350
AQ 2245 IF T<>2 THEN 2300
OA 2247 POKE OFFSET+X*2+2,88
KI 2250 POSITION 27,X+2:? CHR$(198):GOSUB
   TOP:? "ENTER FUNCTION FOR FIELD # ";X
   :GOSUB SEC:? "FUNCTION:>";
VJ 2260 MODE=1:ILEN=20:GOSUB INP:GOSUB OK
   :IF K=78 THEN 2250
GA 2265 FUN$(X*20-19)=B$:FUN$(LEN(FUN$)+1
   )=BL$:GOTO 2350
KD 2290 GOSUB BEEP:GOSUB SEC:? "ERROR IN
   DECIMAL..RE-ENTER":GOSUB DELAY:FNO=X-1
   :GOTO 2115
DZ 2300 IF T<>3 THEN 2350
VA 2310 POSITION 27,X+2:? CHR$(211):GOSUB
    TOP:? "ENTER STATEMENT FOR FIELD # ";
   X
WE 2320 GOSUB SEC:? "STATEMENT>";:MODE=1:
   ILEN=20:GOSUB INP:GOSUB OK:IF K=78 THE
   N 2310
ED 2330 FUN$(X*20-19)=B$:FUN$(LEN(FUN$)+1
   )=BL$
DV 2350 POKE OFFSET+X*2+2,12:NEXT X:FLD=0
   :GOSUB 70:FLD=FNO:RECLEN=ED(FLD):? CL$
   :GOSUB TOP
HU 2360 ? "NEW FILE CREATED":GOSUB 80:GOT
   O MENU
HZ 4000 REM
AH 5000 DIM A$(40),B$(40),BL$(38),CL$(1),
   CUR$(2),LLEN(20),ST(20),ED(20),FILE$(1
   5),FIELD$(200),MOV$(46),ZERO$(10)
GA 5005 ZERO$="0000000000"
IO 5010 BL$=" ":BL$(38)=BL$:BL$(2)=BL$:CL
   $="■":CUR$="■■"
WZ 5015 DIM RECORD$(400),C$(20),TYPE(20),
   DEC(20),EOL$(1),FIND$(110),SORT$(142):
   EOL$=CHR$(155)
ZR 5020 DIM CIO$(7):CIO$="hhh■LV■":RESTOR
   E 5020
AQ 5025 CLOSE #5:OPEN #5,13,0,"E:":POKE 7
   52,1:?
EA 5030 READ OFFSET,INP,OK,BEEP,MENU,TOP,
   SEC,DELAY:DATA 1700,100,200,250,5120,3
   0,40,230
KQ 5035 FOR X=1 TO 45 STEP 2:POKE OFFSET+
   X,0:POKE OFFSET+X+1,12:NEXT X:POKE 512
   ,114:POKE 513,6:POKE OFFSET,1
NG 5040 FIND$(1,55)="hh■Lh■Khh■Qh■■■h■■■h
   ■■■h■■■h■Nh■Mh■Ph■■■■■■■■■■■■■■■■■■■"
WN 5042 FIND$(56,110)="■■■■■■■■■■■■■■■■■■
   ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■"
AY 5050 SORT$(1,70)="hh■Lh■Khh■0h■■■h■■■h
   ■■■h■■■h■■■h■■■■■■■■■■■■■■■■■■■■■■■■
   ■■■■■■■■■■■■"
YT 5052 SORT$(71,142)="■■■■■■■■■■■■■■■■■■
   ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
   ■■■■■■■■■■■■■■■■"
FC 5060 MOV$="hh■■h■■h■Uh■Th■0h■■■■■■■■■
   ■■■■■■■■■■■■■■■■■■"
DZ 5070 MEM=FRE(0)-800:DIM DAT$(100),FUN$
   (400),BUFFER$(MEM)
KE 5075 LNG=1:ELEM=0:RESTORE 4051
DC 5076 X=USR(ADR(MOV$),ADR("H■H■■■■■■■■T
   ■■■h■■■■■■■■■■■■■n0■■■■■■h■he"),1650,
   42)
LG 5080 DL=PEEK(560)+256*PEEK(561)+5
VZ 5090 FOR X=1 TO 23:POKE DL+X,130:NEXT
   X:POKE 54286,192:POKE 710,8:POKE 709,0
   :POKE 712,8
NF 5110 ? CL$:GOSUB TOP:? "TOPSHELF by LE
   STER BLOCK"
AM 5120 TRAP 5130:POP :POP :POP :POP :POP
    :POP :POP :POP :POP :POP
KM 5130 TRAP 40000:GOSUB SEC:? "VIEW:BROW
   SE:ADD:SAVE:LOAD:MORE:EXIT";
SM 5150 MODE=0:GOSUB INP:C=(K=86)+2*(K=66
   )+3*(K=65)+4*(K=83)+5*(K=76)+6*(K=77)+
   7*(K=69):IF  NOT C THEN 5150
TB 5170 ON C GOTO 300,750,400,500,800,518
   0,700
UC 5180 GOSUB SEC:? "SORT:FIND:ERASE:DIRE
   CORY:CREATE";:GOSUB INP
AF 5190 C=(K=83)+2*(K=70)+3*(K=69)+4*(K=6
   8)+5*(K=67):IF  NOT C THEN 5180
JH 5200 ON C GOTO 1300,1400,560,1600,2100
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LISTING 2

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JV 10 REM TOPSHELF, LISTING TWO
QN 20 REM BY LESTER BLOCK
GD 30 REM (c) 1985,1988 ANTIC PUBLISHING
HK 35 REM CREATES LINES 5040-5060, 5076 F
   OR TOPSHELF.BAS
EV 40 REM (LINES 10-250 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IJ 50 REM CHANGE LINE 70 AS NECESSARY.)
PR 60 DIM FN$(20),TEMP$(20),AR$(93):DPL=P
   EEK(10592):POKE 10592,255
WO 70 FN$="D:LINES.LST":REM THIS IS THE N
   AME OF THE DISK FILE TO BE CREATED
RD 80 ? "■Disk or Cassette?";:POKE 764,25
   5
```

```
PY 90 IF  NOT (PEEK(764)=18 OR PEEK(764)=
   58) THEN 90
TH 100 IF PEEK(764)=18 THEN FN$="C:"
VB 110 POKE 764,255:GRAPHICS 0:? "        AN
   TIC'S GENERIC BASIC LOADER"
MY 120 ? ,"BY CHARLES JACKSON"
KB 130 POKE 10592,DPL:TRAP 200
PU 140 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LW 150 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BQ 160 AR$="":READ AR$
YC 170 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DM 180 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
BK 190 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 160
MM 200 IF PEEK(195)=5 THEN ? :? :? "⌧TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CM 210 IF C<LN+1 THEN ? :? "⌧TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
UQ 220 IF FN$="C:" THEN ? :? " Prepare ca
   ssette, press [RETURN]"
AR 230 OPEN #1,8,0,FN$
PV 240 POKE 766,1:? #1;A$;:POKE 766,0
AL 250 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
KK 1000 DATA 475
NS 1010 DATA 053048052048032070073078068
   036040049044053053041061034104104133204
   104133203104104133209104141
SX 1020 DATA 2550061041412540061041412530
   06104141252006104133206104133205104133
   208104133207173252006141250
UF 1030 DATA 0061732530061412510062382500
   06208034155053048052050032070073078068
   036040053054044049049048041
PR 1040 DATA 0610340032382510061732550062
   05251006240003016009096173254006205250
   006048247160000166209177203
HD 1050 DATA 2092052080062002022082462402
   31165203024101207133203165204101208133
   204024144197034155053048053
JP 1060 DATA 0480320830790820840360400490
   44055048041061034104104133204104133203
   104104133207104141253006104
EW 1070 DATA 1412520061041412490061041412
   480006104141251006104141250006173252006
   141254006173253006141255006
WI 1080 DATA 1652031332051652041332062382
   54006208003238255006165205024109250006
   133034155053048053050032083
CA 1090 DATA 0790820840360400550490440490
   52050041061034205165206109251006133206
   173255006205249006240003048
RD 1100 DATA 0110961732540062052480062400
   02016245166207160000177205209203048010
   240002016198200202208242240
BH 1110 DATA 1921732540061412520061732550
   06141253006165205133203165206133204024
   144169034155053048054048032
FY 1120 DATA 0770790860360610341041041332
   41104133240104133213104133212104133239
   104133238160000177240145212
LL 1130 DATA 2302122080022302132302402080
   02230241198238208234198239016230096034
   155053048055054032088061085
DH 1140 DATA 0830820400650680820400770790
   86036041044065068082040034072138072174
   164006189164006141010212141
RM 1150 DATA 0232082321891640061410242081
   41026208232173011212201110048002162001
   142164006104170104064034041
CF 1160 DATA 0440490540530480440520500411
   55
```

more fun for wargamers

Article on page 26

SSI JOYSTICK COMMANDER

LISTING 1

```
UL 1000 REM SSI JOYSTICK DRIVER (6-WAY)
FM 1010 REM BY RICH MOORE
UP 1020 REM (c)1987, ANTIC PUBLISHING
JV 1030 DIM Y$(77)
LD 1050 GRAPHICS 0:POSITION 10,10:? "Dela
   y Value 3←←";:INPUT DELAY:IF DELAY<0 O
   R DELAY>255 THEN 1050
HG 1060 GRAPHICS 0:POSITION 10,10:? "Crea
   ting Driver"
RJ 1070 FOR X=1 TO 77:READ B:Y$(X,X)=CHR$
   (B):NEXT X
ZV 1090 Y$(49,49)=CHR$(DELAY)
JZ 1100 CLOSE #1:OPEN #1,8,0,"D1:SSIJ6.DR
   V"
AF 1110 ? #1;Y$;
MR 1120 CLOSE #1
UY 1130 XIO 35,#1,0,0,"D1:SSIJ6.DRV":REM
   LOCK THE FILE
IJ 1140 GRAPHICS 0:POSITION 13,10:? "COMP
   LETED"
PU 1150 DATA 255,255,217,11,25,12,76
XZ 1160 DATA 191,18,160,229,162,11,169
UL 1170 DATA 7,76,92,228,173,120,2
IJ 1180 DATA 41,15,201,15,240,28,162
GG 1190 DATA 5,188,14,12,221,20,12
AY 1200 DATA 240,5,202,16,245,48,13
CQ 1210 DATA 206,13,12,16,8,162
DW 1220 REM DELAY VALUE
KP 1230 DATA 3
WX 1240 DATA 142,13,12,140,252,2,76
KR 1250 DATA 98,228,3,31,30,26,24
FB 1260 DATA 29,27,14,6,5,13,9
DI 1270 DATA 10,226,2,227,2,220,11
```

LISTING 3

```
0100 ; SSI JOYSTICK DRIVER (6-WAY)
0110 ; BY RICH MOORE
0120 ;(c)1987, ANTIC PUBLISHING
0130 ;
0140 ; SYSTEM EQUATES
0150 SETVBV = 58460
0160 XITVBV = 58466
0170 STICK0 = 632
0180 INITAD = 738
0190 CH    =   764
0200 ;
0210 ; DOS 2.0 EQUATES
0220 XRENAME = $0BD9
0230 ERDVDC = $12BF
0240 ;
0250      *=  XRENAME
0260 ;
0270      JMP ERDVDC
0280 INSTALL
0290      LDY # <VBD
0300      LDX # >VBD
0310      LDA #7
0320      JMP SETVBV
0330 ;
0340 VBD
0350      LDA STICK0
0360      AND #15
0370      CMP #15
0380      BEQ DONE
0390 ;
0400      LDX #5        ;Match stick
0410 ;                   position
0420 L1  ;              (N/NE/SE/S/SW/NW)
0430 ;                   to a
0440      LDY KEY,X     ;keyboard code
0450      CMP POS,X
0460      BEQ DELAY
0470      DEX
0480      BPL L1
0490      BMI DONE      ;Exit if no match
0500 ;
0510 DELAY
0520      DEC TIMER
0530      BPL DONE
0540      LDX #3
0550      STX TIMER
0560 ;
0570 PRESS
0580      STY CH        ;Enter the code
0590 DONE
```

continued on next page

```
0600     JMP XITVBV   ;and exit
0610 ;
0620 TIMER
0630     .BYTE 3
0640 ;
0650 KEY
0660     .BYTE 31      ;"1"
0670     .BYTE 30      ;"2"
0680     .BYTE 26      ;"3"
0690     .BYTE 24      ;"4"
0700     .BYTE 29      ;"5"
0710     .BYTE 27      ;"6"
0720 POS
0730     .BYTE 14      ;NORTH
0740     .BYTE 6       ;NE
0750     .BYTE 5       ;SE
0760     .BYTE 13      ;SOUTH
0770     .BYTE 9       ;SW
0780     .BYTE 10      ;NW
0790 ;
0800     *=  INITAD
0810     .WORD INSTALL
0820     .END
```

LISTING 2

```
WV 1000 REM SSI JOYSTICK DRIVER (8-WAY)
FM 1010 REM BY RICH MOORE
UP 1020 REM (c)1987, ANTIC PUBLISHING
SC 1030 DIM T$(1),Y$(101)
XZ 1040 GRAPHICS 0:POSITION 7,10:? "Ignor
        e Trigger (Y/N)";:INPUT T$:IF  NOT (T$
        ="Y" OR T$="N") THEN 1040
LD 1050 GRAPHICS 0:POSITION 10,10:? "Dela
        y Value 3←←";:INPUT DELAY:IF DELAY<0 O
        R DELAY>255 THEN 1050
HG 1060 GRAPHICS 0:POSITION 10,10:? "Crea
        ting Driver"
MY 1070 FOR X=1 TO 101:READ B:Y$(X,X)=CHR
        $(B):NEXT X
LH 1080 IF T$="Y" THEN Y$(32,32)="■":Y$(4
        7,47)="■"
BL 1090 Y$(69,69)=CHR$(DELAY)
MR 1100 CLOSE #1:OPEN #1,8,0,"D1:SSIJ8.DR
        V"
AF 1110 ? #1;Y$;
MR 1120 CLOSE #1
XC 1130 XIO 35,#1,0,0,"D1:SSIJ8.DRV":REM
        LOCK THE FILE
IJ 1140 GRAPHICS 0:POSITION 13,10:? "COMP
        LETED"
VY 1150 DATA 255,255,217,11,49,12,76
XZ 1160 DATA 191,18,160,229,162,11,169
UL 1170 DATA 7,76,92,228,173,120,2
OH 1180 DATA 41,15,201,15,240,48,174
IH 1190 DATA 132,2,240
SP 1200 REM CHANGE 15->0 FOR NO TRIGGER
HZ 1210 DATA 15
DR 1220 DATA 162,3,188,34,12,221,38
KU 1230 DATA 12,240,20,202,16,245,48
VU 1240 REM CHANGE 28->0 FOR NO TRIGGER
KG 1250 DATA 28
HF 1260 DATA 162,3,188,42,12,221,46,12
CJ 1270 DATA 240,5,202,16,245,48,13,206
MP 1280 DATA 33,12,16,8,162
ER 1290 REM DELAY VALUE
KI 1300 DATA 3
VO 1310 DATA 142,33,12,140,252,2,76,98
LF 1320 DATA 228,3,31,26,29,51,14
CB 1330 DATA 7,13,11,30,24,27,53
DA 1340 DATA 6,5,9,10,226,2,227
VL 1350 DATA 2,220,11
```

LISTING 4

```
0100 ; SSI JOYSTICK DRIVER (8-WAY)
0110 ; BY RICH MOORE
0120 ; (c)1987, ANTIC PUBLISHING
0130 ;
0140 ;Uses deferred Vertical Blank to
0150 ;enter a keycode based on the
0160 ;deflection of the joystick and
0170 ;whether the trigger is pressed.
0180 ;
0190 ;Replaces "XRENAME" in DOS 2.0
0200 ;
0210 ; System equates
0220 ;
0230 SETVBV = 58460
0240 XITVBV = 58466
0250 STICK0 = 632
0260 STRIG0 = 644
0270 INITAD = 738
0280 CH   =    764
0290 ;
0300 ; DOS 2.0 equates
0310 XRENAME = $0BD9 ; Start of
                       "XRENAME"
0320 ;
0330 ERDVDC = $12BF  ;Command error
                       routine
0340 ;
0350     *=  XRENAME
0360 ;
0370     JMP ERDVDC    ;Jump to error
0380 ;                 ;routine if
0390 ;                  XRENAME called
0400 ;                  by CIO or DOS
0410 ;
0420 INSTALL ;         Link joystick
0430     LDY # <VBD    ;into the deffrd
0440     LDX # >VBD    ;Vertical Blank
0450     LDA #7
0460     JMP SETVBV
0470 ;
0480 VBD
0490     LDA STICK0
0500     AND #15       ;Mask-out upper
0510 ;                  four bits,
0520     CMP #15       ;exit if stick
0530 ;                  is centered.
0540     BEQ DONE
0550 ;
0560     LDX STRIG0    ;If pressed,
0570     BEQ D0        ;check diagonal.
0580 ;
0590     LDX #3        ;Check for
0600 L1  ;             Cardinal (NESW)
0610     LDY KEY1,X    ;direction.
0620     CMP CARD,X
0630     BEQ DELAY
0640 ;
0650     DEX
0660     BPL L1
0670     BMI DONE      ;Exit if no match
0680 ;
0690 D0  ;             Check for
0700     LDX #3        ;diagonals
0710 D1
0720     LDY KEY2,X
0730     CMP DIAG,X
0740     BEQ DELAY
0750     DEX
0760     BPL D1
0770     BMI DONE
0780 ;
0790 DELAY
0800     DEC TIMER
0810     BPL DONE
0820     LDX #3
0830     STX TIMER
0840 ;
0850 PRESS
0860     STY CH        ;Enter the code
0870 DONE
0880     JMP XITVBV    ;and exit.
0890 ;
0900 TIMER
0910     .BYTE 3
0920 ;
0930 KEY1
0940     .BYTE 31      ;"1"
0950     .BYTE 26      ;"3"
0960     .BYTE 29      ;"5"
0970     .BYTE 51      ;"7"
0980 CARD
0990     .BYTE 14      ;NORTH
1000     .BYTE 7       ;EAST
1010     .BYTE 13      ;SOUTH
1020     .BYTE 11      ;WEST
1030 ;
1040 KEY2
1050     .BYTE 30      ;"2"
1060     .BYTE 24      ;"4"
1070     .BYTE 27      ;"6"
1080     .BYTE 53      ;"8"
1090 DIAG
1100     .BYTE 6       ;NE
1110     .BYTE 5       ;SE
1120     .BYTE 9       ;SW
1130     .BYTE 10      ;NW
1140 ;
1150 ;
1160     *=  INITAD    ;Execute as soon
1170 ;                  as segment
1180 ;                  is loaded so
1190     .WORD INSTALL ; it can be
1200 ;                 ;the first part
1210 ;                 ; of an
1220 ;                 AUTORUN.SYS file
1230     .END
```

BASIC BIORHYTHMS

Article on page 21

LISTING 1

Don't type the TYPO II Codes!

```
DW 1 REM BIORHYTHMS AT YOUR KEYBOARD
AV 2 REM BY TOM BOHMBACH
GF 3 REM (c) 1987, ANTIC PUBLISHING
KD 9 OPEN #1,4,0,"K:":BRKK=PEEK(53279)<>5
IR 10 GRAPHICS 2:POKE 710,0:POSITION 5,1:
   ? #6;"BIORHYTHMS":POSITION 9,2:? #6;"A
   T"
JB 11 POSITION 8,3:? #6;"YOUR":POSITION 6
   ,4:? #6;"KEYBOARD":GOSUB 1075
CD 15 POSITION 9,7:? #6;"by":POSITION 4,8
   :? #6;"tom bohmbach"
EY 30 POKE 752,1:? :? "        (Press any k
   ey to begin)":GET #1,K
SW 100 DIM MON(12),P(62),E(62),I(62)
UB 110 DIM YN$(1),NA$(10),MO$(10),F$(100)
   ,NA1$(10),NA2$(10),A$(5)
CJ 120 MON(1)=31:MON(3)=31:MON(4)=30:MON(
   5)=31:MON(6)=30:MON(7)=31:MON(8)=31:MO
   N(9)=30:MON(10)=31
PY 130 MON(11)=30:MON(12)=31
TC 198 REM CHOOSE BIORHYTHMS OR COMPATIBI
   LITY PROFILE
CK 199 GRAPHICS 0:POKE 710,0
KP 1020 ? "}":POKE 752,1:POSITION 14,6:?
   "Do you want:":POSITION 14,7:? "□□□□□□□
   □□□□□□"
YW 1030 POSITION 15,8:? "Biorhythms":POSI
   TION 19,10:? "or":POSITION 10,12:? "Co
   mpatibility Profile"
OI 1040 GOSUB 1075:POKE 702,64:POKE 694,0
   :GET #1,K:IF K=66 THEN 2000:REM GOTO B
   IORHYTHMS
UF 1050 IF K<>67 THEN 1020
DV 1060 GOTO 6000:REM GOTO COMPAT.
OS 1075 POKE 77,0:IF BRKK THEN POKE 16,11
   2:POKE 53774,112
BS 1076 RETURN
DA 2000 ? "}":? "          Please enter your
    name"
ZT 2010 GOSUB 8000
WA 2130 ? "}":POSITION 2,8:TR=2130:TRAP 5
   000
CS 2131 ? "Please enter your birthdate":?
    :? "(M,D,Y i.e. 1,31,1987)";:INPUT MO
   ,DA,YR
KL 2140 TR=0:GOSUB 9000
DE 2150 IF ER=1 THEN 2130
GM 2160 ? "}":POSITION 2,6:? "Is this you
   r correct birthday (Y/N)?":EMO=MO:GOSU
   B 4000
DC 2170 POSITION 12,9:? MO$;" ";DA;", ";Y
   R
WE 2180 POSITION 38,6:GOSUB 7000
RU 2190 IF YN$="N" THEN 2130
FH 2200 ? "}":POSITION 2,9:? "Please ente
   r the month and year you   would like
   to examine"
KB 2205 ? :? "(M,Y i.e. 1,1987)";
BL 2210 TR=2200:TRAP 5000:INPUT EMO,EYR
YP 2215 TR=0
XF 2220 ER=0:IF EMO<1 OR EMO>12 OR EMO<>I
   NT(EMO) OR EYR<1900 OR EYR>2100 OR EYR
   <>INT(EYR) THEN ER=1
FA 2230 IF ER=0 THEN 2232
QE 2231 ? :? "                BAD DATE":FOR
    XX=1 TO 100:NEXT XX:GOTO 2200
YB 2232 IF EMO=2 AND EYR/4=INT(EYR/4) AND
    EYR/400<>INT(EYR/400) THEN MON(2)=29:
   GOTO 2240
OL 2233 MON(2)=28
YX 2234 GOSUB 4000
AE 2239 REM COMPUTE THE # OF DAYS BETWEEN
    BIRTHDAY AND THE  1st OF EXAMINATION
   MONTH
YP 2240 IF MO=1 OR MO=2 THEN YY=YR-1:MO1=
   MO+13:GOTO 2260
MV 2250 MO1=MO+1:YY=YR
UX 2260 DAY1=INT(365.25*YY)+INT(30.6001*M
   O1)+DA
WB 2270 IF EMO=1 OR EMO=2 THEN YY=EYR-1:M
   O2=EMO+13:GOTO 2290
UO 2280 MO2=EMO+1:YY=EYR
RF 2290 DAY2=INT(365.25*YY)+INT(30.6001*M
   O2)
EA 2300 DAYS=(DAY2-DAY1)+1
FZ 2400 REM COMPUTE THE # OF DAYS INTO EA
   CH CYCLE
SQ 2500 PHY=INT(DAYS/23):EM=INT(DAYS/28):
   ITL=INT(DAYS/33)
PC 2510 PHY=PHY*23:EM=EM*28:ITL=ITL*33
SP 2520 PHY=DAYS-PHY:EM=DAYS-EM:ITL=DAYS-
   ITL
SA 2521 IF PHY=23 THEN PHY=0
TK 2522 IF EM=28 THEN EM=0
IN 2523 IF ITL=33 THEN ITL=0
ZM 2559 REM INIT. SCREEN
LK 2560 GRAPHICS 7:COLOR 2:POKE 708,106:G
   OSUB 1075
VC 2570 PLOT 7,39:DRAWTO 159,39:PLOT 0,0:
   DRAWTO 159,0:DRAWTO 159,79:DRAWTO 0,79
   :DRAWTO 0,0
NF 2580 FOR A=7 TO 159 STEP 4
TS 2590 PLOT A,0:DRAWTO A,79
BS 2600 NEXT A
EG 2610 PLOT 2,8:DRAWTO 2,11:PLOT 5,8:DRA
   WTO 5,11:PLOT 2,9:DRAWTO 5,9
XL 2620 PLOT 2,68:DRAWTO 2,71:PLOT 2,71:D
   RAWTO 4,71
VC 2625 PLOT 2,38:DRAWTO 2,39:PLOT 3,37:D
   RAWTO 4,37:PLOT 3,40:DRAWTO 4,40
QW 2630 POKE 752,1:? "1234567891111111111
   222222222233":? "   DAYS  012345678901
   2345678901"
DK 2640 ? "          PRESS ANY KEY TO CONTINU
   E"
FM 2650 ? "NAME:";NA$;"       ";MO$;"/";EYR
   ;
TN 2659 REM COMPUTE AND GRAPH CYCLE FUNCT
   IONS - BLUE=PHYSICAL - RED=EMOTIONAL -
    GREEN=INTELLECTUAL
HW 2660 DEG :COLOR 3:ADJ=360/96
BY 2670 H=30:A=0:B=MON(EMO)*4:X=7:AD=PHY*
   4:GOSUB 2671:GOTO 2730
TG 2671 Y=SIN(ADJ*AD)*H:Y=39-Y
YY 2672 PLOT X,Y
VD 2680 FOR X=A TO B
MU 2690 Y=SIN(ADJ*(X+AD))*H:Y=39-Y
NU 2700 DRAWTO X+7,Y
LQ 2710 NEXT X
AU 2720 RETURN
DS 2730 COLOR 1:ADJ=360/116
UZ 2740 X=7:AD=EM*4:GOSUB 2671
GE 2750 COLOR 2:ADJ=360/136
WR 2760 X=7:AD=ITL*4:GOSUB 2671
HQ 2770 GET #1,K:GRAPHICS 0:POKE 710,0
DK 2999 REM MENU
HX 3000 ? "}":? "                      MENU "
   :? :? "           Go ahead one month":?
    :? "          Print this month":?
VT 3005 ? "             See another month":?
    :? "          Enter another birthday"
IG 3006 ? :? "            Use Compatibility
    Profile"
GH 3010 ? :? "                     Quit":? :
   ? :POKE 752,1:? "          Please Cho
   ose One":GOSUB 1075
TK 3020 POKE 702,64:POKE 694,0:GET #1,K
HR 3030 IF K=71 THEN 11000
UE 3040 IF K=83 THEN 2200
UR 3050 IF K=69 THEN 2000
XJ 3055 IF K=85 THEN 6000
ER 3060 IF K=81 THEN GRAPHICS 0:END
TM 3070 IF K<>80 THEN 3020
MJ 3079 REM PRINTER OPTION
KZ 3080 ? "}":POSITION 2,10:? "  PLEASE M
   AKE SURE PRINTER IS READY":? "
     THEN PRESS A KEY":GET #1,K
AB 3090 TR=3080:TRAP 5100:OPEN #2,8,0,"P:
   "
ZK 3095 TR=0
UD 3099 REM SET UP PRINTER
AN 3100 ? #2:? #2:? #2;"NAME:";NA$;"
                      ";MO$;"/";EYR
VO 3101 ? #2:? #2:? #2:? #2;"
                      DAYS"
YS 3102 ? #2;" 1 2 3 4 5 6 7 8 9 1 1 1 1
   1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3"
EA 3103 ? #2;"                    0 1 2 3
   4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1"
LZ 3110 ? #2;"-------------------------------
   ----------------------------------"
CX 3119 REM COMPUTE VALUES
VL 3120 PADJ=360/48:EADJ=360/58:IADJ=360/
   68:GRAPHICS 4:POKE 710,0:POKE 752,1:?
   ,"   Thinking"
GT 3125 COLOR 1:PLOT 10,20:DRAWTO MON(EMO
   )*2+10,20:GOSUB 1075
JI 3130 COLOR 0:PLOT 10,20:FOR A=1 TO MON
   (EMO)*2
PQ 3131 DRAWTO A+10,20
ZU 3140 P(A)=INT(SIN(PADJ*(A+(PHY*2)))*20
   )
VD 3150 E(A)=INT(SIN(EADJ*(A+(EM*2)))*20)
```

```
KD 3160 I(A)=INT(SIN(IADJ*(A+(ITL*2)))*20
   )
VL 3170 NEXT A:? "■":? ,"  Printing"
KZ 3179 REM PRINT IT
CL 3180 FOR H=19 TO -20 STEP -1
GM 3190 FOR D=1 TO MON(EMO)*2
YO 3200 IF P(D)=H THEN F$(D,D)="*":NEXT D
   :GOTO 3241
WA 3210 IF E(D)=H THEN F$(D,D)="+":NEXT D
   :GOTO 3241
OH 3220 IF I(D)=H THEN F$(D,D)="*":NEXT D
   :GOTO 3241
FT 3230 F$(D,D)=" "
DE 3240 NEXT D
GD 3241 IF H=19 THEN ? #2;"H";:? #2;F$:NE
   XT H
OF 3242 IF H=0 THEN ? #2;"C--------------
   ----------------------------------------
   ------------":NEXT H
GW 3243 IF H=-20 THEN ? #2;"L";:? #2;F$:G
   OTO 3245
BM 3244 ? #2;"□";F$:NEXT H
NE 3245 ? #2;"----------------------------
   ----------------------------------------"
ZN 3290 ? #2;" 1 2 3 4 5 6 7 8 9 1 1 1 1
   1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 3 3"
DS 3300 ? #2;"                   0 1 2 3
   4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1"
MJ 3310 ? #2;"
       DAYS"
QQ 3320 ? #2:? #2:? #2;"
     *=PHYSICAL  +=EMOTIONAL  *=INTELLECT
   UAL"
NN 3330 CLOSE #2
KD 3340 GRAPHICS 0:POKE 752,1:POKE 710,0:
   GOTO 3000
YQ 3999 REM MONTH NAME
CQ 4000 ON EMO GOTO 4010,4020,4030,4040,4
   050,4060,4070,4080,4090,4100,4110,4120
ZD 4010 MO$="JANUARY":RETURN
TK 4020 MO$="FEBUARY":RETURN
AI 4030 MO$="MARCH":RETURN
HV 4040 MO$="APRIL":RETURN
ML 4050 MO$="MAY":RETURN
WE 4060 MO$="JUNE":RETURN
GB 4070 MO$="JULY":RETURN
LH 4080 MO$="AUGUST":RETURN
MB 4090 MO$="SEPTEMBER":RETURN
PX 4100 MO$="OCTOBER":RETURN
NN 4110 MO$="NOVEMBER":RETURN
VH 4120 MO$="DECEMBER":RETURN
QD 4999 REM ERRORS ROUTINES
GX 5000 TRAP 40000:? :? "
   ERRORS":FOR XX=1 TO 500:NEXT XX:GOTO T
   R
NN 5100 CLOSE #2:GOTO 5000
NK 5998 REM COMPATIBILITY PROFILE
QY 5999 REM 1ST NAME
RE 6000 ? "■":POKE 752,1:? "   Please ent
   er 1st person's name"
LC 6010 GOSUB 8000:NA1$=NA$
NV 6019 REM 1ST BIRTHDAY
QP 6020 ? "■":POSITION 2,9
IK 6021 TR=6020:TRAP 5000:? "Please enter
    1st person's birthdate   (M,D,Y i.e.
   1,31,1987)";:INPUT MO,DA,YR
VM 6030 GOSUB 9000:TR=0
GP 6040 IF ER=1 THEN GOTO 6020
YX 6045 M1=MO:D1=DA:Y1=YR
HN 6050 ? "■":POSITION 2,6:? "Is this the
    correct birthday (Y/N)?":EMO=MO:GOSUB
    4000
MM 6060 POSITION 12,9:? MO$;" ";D1;", ";Y
   1
WD 6070 POSITION 38,6:GOSUB 7000
TI 6080 IF YN$="N" THEN 6020
JX 6099 REM ENTER 2ND NAME
JN 6100 ? "■":POKE 752,1:? "   Please ent
   er 2nd person's name"
LX 6110 GOSUB 8000:NA2$=NA$
BB 6119 REM ENTER 2ND BIRTHDAY
QR 6120 ? "■":POSITION 2,9
CR 6121 TR=6120:TRAP 5000:? "Please enter
    2nd person's birthdate   (M,D,Y i.e.
   1,31,1987)";:INPUT MO,DA,YR
VO 6130 GOSUB 9000:TR=0
HQ 6140 IF ER=1 THEN GOTO 6120
AM 6145 M2=MO:D2=DA:Y2=YR
HP 6150 ? "■":POSITION 2,6:? "Is this the
    correct birthday (Y/N)?":EMO=MO:GOSUB
    4000
PG 6160 POSITION 12,9:? MO$;" ";D2;", ";Y
   2
WF 6170 POSITION 38,6:GOSUB 7000
UH 6180 IF YN$="N" THEN 6120
EO 6199 REM FIND # OF DAYS BETWEEN BIRTHD
   AYS
BW 6200 IF M1=1 OR M1=2 THEN Y1=Y1-1:M1=M
   1+13:GOTO 6220
FE 6210 M1=M1+1
MA 6220 DAY1=INT(365.25*Y1)+INT(30.6001*M
   1)+D1
OI 6230 IF M2=1 OR M2=2 THEN Y2=Y2-1:M2=M
   2+13:GOTO 6250
GE 6240 M2=M2+1
QT 6250 DAY2=INT(365.25*Y2)+INT(30.6001*M
   2)+D2
XS 6260 DAYS=ABS(DAY2-DAY1)
JJ 6269 REM COMPUTE CYCLE DIFFERENCES
MQ 6270 PHY=INT(DAYS/23):PHY=PHY*23:PHY=D
   AYS-PHY:P=PHY
NN 6280 EM=INT(DAYS/28):EM=EM*28:EM=DAYS-
   EM:E=EM
UX 6290 ITL=INT(DAYS/33):ITL=ITL*33:ITL=D
   AYS-ITL:I=ITL
OV 6299 REM COMPUTE COMPATIBILITY %'S
RM 6300 PHY=ABS(11.5-PHY):PHY=PHY/23*2:A$
   =STR$(PHY)
ZQ 6320 GOSUB 10000:PHY=VAL(A$)
ZU 6370 EM=ABS(14-EM):EM=EM/28*2:A$=STR$(
   EM)
MZ 6400 GOSUB 10000:EM=VAL(A$)
HO 6410 ITL=ABS(16.5-ITL):ITL=ITL/33*2:A$
   =STR$(ITL)
TW 6440 GOSUB 10000:ITL=VAL(A$)
PQ 6445 PHY=PHY*100:EM=EM*100:ITL=ITL*100
QS 6448 REM PRINT %'S
BV 6449 GRAPHICS 2:? #6;"    COMPATIBILIT
   Y":? #6;"    PERCENTAGES":? #6;"-----
   ---------------"
HD 6450 ? #6;"       PHYSICAL=";PHY;"%":? #
   6:? #6;"    emotional=";EM;"%":? #6
RE 6460 ? #6;" intellectual=";ITL;"%":GOS
   UB 1075
AT 6461 ? "■                  FOR":A=INT((
   39-(LEN(NA1$)+LEN(NA2$)+3))/2)
KC 6462 FOR B=1 TO A:? " ";:NEXT B
GB 6463 ? NA1$;" & ";NA2$
EV 6470 POKE 752,1:? :? "         PRESS ANY
   KEY TO CONTINUE";
DT 6480 GET #1,K:GOTO 199
LL 6999 REM (Y)ES OR (N)O
TD 7000 POKE 702,64:POKE 694,0:GET #1,K:Y
   N$=CHR$(K):IF YN$<>"Y" AND YN$<>"N" TH
   EN 200
AI 7010 RETURN
HU 7999 REM ENTER NAMES
IM 8000 ? :? "     Use BACKSPACE to erase
    typos"
KL 8010 ? :? "     Press RETURN when fini
   shed":? :? :? "            __________
   "
KD 8030 POSITION 15,8
GY 8040 NA$="":A=1
UD 8050 POKE 702,64:POKE 694,0:GET #1,K:I
   F K=155 THEN 8120
YX 8060 IF K=126 AND A>1 THEN ? CHR$(K);"
   _";CHR$(30);:A=A-1:NA$(A,A)=" ":GOTO 8
   050
GO 8070 IF K<32 OR K>95 THEN 8050
TR 8080 NA$(A,A)=CHR$(K):? CHR$(K);:A=A+1
UC 8090 IF A<>11 THEN 8050
XE 8100 GET #1,K:IF K<>126 AND K<>155 THE
   N 8100
VK 8110 IF K=126 THEN 8060
AO 8120 RETURN
RN 8999 REM CHECK DATES
SB 9000 ER=0:IF MO<1 OR MO>12 OR MO<>INT(
   MO) THEN ER=1
TN 9005 IF MO=2 THEN MON(2)=29:GOTO 9010
OR 9006 MON(2)=28
GY 9010 IF DA<1 OR DA>MON(MO) OR DA<>INT(
   DA) THEN ER=1
ED 9030 IF YR<1900 OR YR>2100 OR YR<>INT(
   YR) THEN ER=1
JO 9040 IF ER=0 THEN 9060
AV 9050 ? :? :? "                 BAD DATE"
   :FOR XX=1 TO 500:NEXT XX
AZ 9060 RETURN
XB 9999 REM ROUND OFF %'S
ZX 10000 IF LEN(A$)<5 THEN RETURN
AV 10010 A=VAL(A$(5,5)):B=VAL(A$(4,4))
LN 10020 IF A>4 THEN B=B+1
MD 10030 A$(4,4)=STR$(B):A$(5,5)="0"
DN 10040 RETURN
QH 10999 REM COMPUTE NEXT MONTH CYCLES
AR 11000 PHY=PHY+MON(EMO):EM=EM+MON(EMO):
   ITL=ITL+MON(EMO)
EC 11010 IF PHY>23 THEN PHY=PHY-23:GOTO 1
   1010
MP 11020 IF EM>28 THEN EM=EM-28:GOTO 1102
   0
PU 11030 IF ITL>33 THEN ITL=ITL-33:GOTO 1
   1030
BT 11040 EMO=EMO+1:IF EMO=13 THEN EMO=1:E
   YR=EYR+1
FZ 11050 GOSUB 4000:GOTO 2560
```

GFA BASIC Loader

Article on page 60

LISTING 1

```
'
'
' Data File Creation utility
Let Version$="092887"
' Copyright 1987 Antic Publishing
' Written by Patrick Bass
'
' ---- Main Program Loop ------
'
@Initialize
'
@Convert_file
'
@Terminate
Edit
End
'
' -------------------------------
Procedure Initialize
  '
  Let In_handle=1
  Let Out_handle=2
  Let Finished=False
  Let Right_button=2
  Let Line_limit=31
  Let A_short_while=100
  '
  Let Bell$=Chr$(7)
  '
  If Xbios(4)<1 Then
    Alert 1,"Please switch!over to medium!resolution.",1," Press ",A
    System
  Endif
Return
'
' --------------------------------
Procedure Convert_file
  '
  While Not Finished
    Cls
    @Select_file_to_convert
    '
    @Create_data_file
    '
    Alert 0,"Convert another File?",2," Yes ! No ",Button_pressed
    '
    If Button_pressed=Right_button
      Let Finished=True
    Endif
  Wend
  '
Return
'
' ---------------------------------
Procedure Create_data_file
  '
  Cls
  If Exist(Infilename$)
    @Write_file
  Else
    Print Bell$
    Alert 0,"I can't find ! "+Infilename$+" ! ",1," Rats ",Button_pressed
  Endif
  Cls
  Close #Out_handle
  Close #In_handle
Return
'
' ---------------------------------
Procedure Write_file
  '
  Print
  Print " Starting File Conversion."
  Print " I am converting ";Infilename$;" into ";Outfilename$;"."
  '
  Open "I",#In_handle,Infilename$
  Open "O",#Out_handle,Outfilename$
  '
  Let Length_of_file=Lof(#In_handle)
  Print " The file is ";Length_of_file;" bytes long."
  '
  Print #Out_handle;" Data ";Length_of_file
  '
  Let Byte=0
  Let Line_size=0
  Let Out$=" Data "
  '
  While Byte<Length_of_file
    '
    Let X$=Hex$(Asc(Input$(1,#In_handle)))
    Let Out$=Out$+Left$("00",2-Len(X$))+X$
    Let Byte=(Byte+1)
    Let Line_size=(Line_size+1)
    '
    If Line_size>Line_limit
      Print At(2,6);"Bytes processed: ";Byte;"    "
      Print #Out_handle;Out$
      Let Out$=" Data "
      Let Line_size=0
    Endif
    '
  Wend
  '
  If Len(Out$)>Len(" data ")
    Print #Out_handle;Out$
  Endif
  Print #Out_handle;" Data end "
  '
  Print Bell$;" ";Outfilename$;" created successfully."
  Pause A_short_while
Return
'
' ------------------------------------
Procedure Terminate
  Close #In_handle
  Close #Out_handle
Return
'
' ------------------------------------
Procedure Prompt_action
  Print At(63,17);"Select a file"
  Print At(63,18);"and press [OK]"
  Print At(63,19);"<----------"
  Print At(63,20);"Or press [CANCEL]"
  Print At(63,21);"to abort action."
Return
'
' ------------------------------------
Procedure Select_file_to_convert
  '
  Let Infilename$=""
  Let Outfilename$=""
  '
  Let Drive$=Chr$(Asc("A")+Gemdos(25))
  Let Path$=Drive$+":\*.*"
  '
  @Prompt_action
  Fileselect Path$,"",Infilename$
  '
  Let X=Instr(Infilename$,".")
  Let Outfilename$=Left$(Infilename$,X)+"LST"
  '
  Let Path_length=Len(Infilename$)
  Repeat
    Let Found=Instr(Path_length,Infilename$,"\")
    Let Path_length=(Path_length-1)
  Until Found Or Path_length<1
  Let Filename$=Mid$(Infilename$,Path_length+1)
  '
Return
'
```

LISTING 2

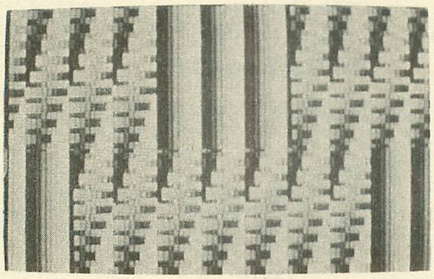
```
'
' --------------------------------
' A Utility to recreate a file.
Let Version$="092887"
' Copyright 1987 Antic Publishing
' Written by Patrick Bass
'
' --------------------------------
Procedure Recreate(Filename$)
  '
  Restore Datum_pointer
  Read File_length
  Dim Buffer%((File_length+256)/4)
  Let Buff=(Varptr(Buffer%(0)))
  Let Count=0
  '
  Repeat
    Read X$
    If X$<>"end"
      Let X=Len(X$)
      For I=1 To X Step 2
        Let Y$=Mid$(X$,I,2)
        Let Byte=Val("&h"+Y$)
        Poke Buff+Count,Byte
        Let Count=(Count+1)
      Next I
    Endif
  Until X$="end"
  '
  Bsave Filename$,Buff,Count
Return
End
'
```

Tech Tips

by BILL MARQUARDT

MINI-GRAPHICS CHALLENGE WINNERS

The Mini-Graphics Challenge (Tech Tips, *Antic*, August 1987) asked readers to come up with a BASIC graphics display program of 10 lines or less. Our winner is Bigfoot by Robert Jones of Dover, Delaware. He will receive a program of his choice from *The Catalog*. Thanks to everybody who entered the contest.



BIGFOOT

The techniques in Bigfoot could be used in larger programs to produce some fantastic effects. **Antic** liked the way this program makes transitions from one effect to another, rather than just repeating itself. And the clever use of sound added to the overall impact of the program.

```
1 GRAPHICS 10:FOR X=0 TO 15 STEP +2:POKE 704+(X/2),X:NEXT X
2 SOUND 0,200,10,3:SOUND 1,202,10,3:UPPER=PEEK(560)+256*PEEK(561)+4:LOWER=PEEK(560)+256*PEEK(561)+100
3 FOR X=0 TO 79:C=C*(C<8)+1:COLOR C:PLOT X,0:DRAWTO X,178:NEXT X:SOUND 0,190,10,4:SOUND 1,188,10,4
4 FOR Y=1 TO 175 STEP +10:FOR X=66 TO 12 STEP -1:C=C*(C<8)+1:COLOR C:PLOT X,Y:DRAWTO X,Y+5:NEXT X:NEXT Y
5 FOR Y=1 TO 15:FOR X=1 TO 40:POKE UPPER,X:SOUND 0,200+X,10,Y:NEXT X:FOR X=1 TO 40:POKE LOWER,X:NEXT X:
  NEXT Y
6 SOUND 1,200+X+2,10,13:SOUND 2,200+X+4,10,14:SOUND 0,0,0,0
7 FOR Y=1 TO 4:FOR X=1 TO 40:POKE UPPER,X:GOSUB 9:NEXT X:FOR X=1 TO 40:POKE LOWER,X:GOSUB 9:NEXT X:NEXT Y
8 FOR X=0 TO 15 STEP 0.1:POKE 704+(X/2),0:SOUND 1,200+X+2,10,15-X:SOUND 2,200+X+4,10,15-X:NEXT X:END
9 Z=PEEK(712):POKE 712,PEEK(711):POKE 711,PEEK(710):POKE 710,PEEK(709):POKE 709,PEEK(708):POKE 708,PEEK(707)
10 POKE 707,PEEK(706):POKE 706,PEEK(705):POKE 705,Z:RETURN
```

HANDCAR

Honorable Mention goes to Handcar, a clever use of character set animation by Kevin Packard of Grand Island, New York.

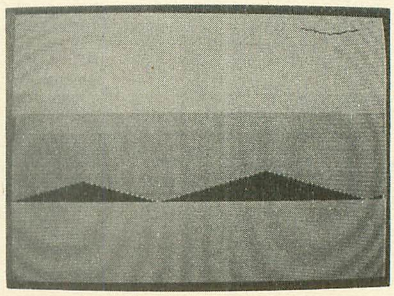
If you have trouble typing the special characters in line 2, don't type them in. Listing 2 will create them for you. Type in Listing 2, check it with TYPO II and SAVE a copy. When you RUN Listing 2, it creates these hard-to-type lines and stores them in a file called LINES.LST.

To merge the two programs, disk users LOAD "D:HANDCAR.BAS" and then ENTER "D:LINES.LST." (Cassette users: CLOAD Listing 1, then insert the separate cassette used for Listing 2 and ENTER "C:") Remember to SAVE the completed program before you RUN it.

Listing 1

```
BZ 1 DIM A$(4),B$(4),C$(4),D$(4),E$(72):P
   OKE 106,PEEK(106)-5:GRAPHICS 2:SETCOLO
   R 2,0,0:S=(PEEK(106)+1)*256:A$="IABI"
LF 2 E$="[special characters]":POKE 756,S/256:B$="ICDI"
OJ 3 FOR Y=1 TO 72:POKE 263+S+Y,ASC(E$(Y,
   Y)):NEXT Y:C$="IEFI":D$="IGHI":POSITIO
   N 0,5:? #6;"IIIIIIIIIIIIIIIIIII"
FZ 4 FOR X=0 TO 16:POSITION X,5:? #6;A$:G
   OSUB 8:GOSUB 10:POSITION X,5:? #6;B$:G
   OSUB 10
HE 5 POSITION X,5:? #6;C$:GOSUB 9:GOSUB 1
   0:POSITION X,5:? #6;D$:GOSUB 10:NEXT X
WZ 6 FOR X=16 TO 0 STEP -1:POSITION X,5:?
    #6;D$:POSITION X,5:? #6;C$:GOSUB 9:PO
   SITION X,5:? #6;B$
GU 7 POSITION X,5:? #6;A$:GOSUB 8:NEXT X:
   GOTO 4
OD 8 SOUND 1,250,10,10:SOUND 1,0,0,0:RETU
   RN
EN 9 SOUND 1,50,10,10:SOUND 1,0,0,0:RETUR
   N
NN 10 FOR Y=1 TO 100:NEXT Y:RETURN
```

Listing 2 on page 65



SUNSET

Our other Honorable Mention goes to Brett Fattorri of Saline, Michigan for his entry, Sunset. When you RUN this one, be sure to adjust your color so the uppermost part of the screen is sky blue.

```
1 GRAPHICS 11:C=5.5:FOR V=1 TO 136:A=136:B=191:D=78
2 C=C+0.07:COLOR C:PLOT 0,V:DRAWTO 78,V:NEXT V:X=0:Y=136
3 COLOR 0:R=INT(RND(0)*30)+1:FOR V=1 TO R:PLOT X,136:DRAWTO
  X,Y:X=X+1:Y=Y-1:IF X>=78 THEN 7
4 NEXT V
5 FOR V=1 TO R:PLOT X,136:DRAWTO X,Y:X=X+1:Y=Y+1:IF X>=78 THEN 7
6 NEXT V:GOTO 3
7 FOR N=1 TO 20:COLOR 7:PLOT 1,N:DRAWTO D,N:NEXT N:COLOR 11:
  FOR Y=A TO B:PLOT 0,Y:DRAWTO D,Y:NEXT Y:V=10:UD=UD+1
8 COLOR 0:PLOT 60,V:DRAWTO 66,15:DRAWTO 72,V:COLOR 7:PLOT 60,V:DRAWTO
  66,15:DRAWTO 72,V:V=V+UD:IF V=20 THEN UD=-1
9 IF V=10 THEN UD=+1
10 GOTO 8
```

If you have a Tech Tip that you would like to share with other readers, send it along to Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. You might get your name in print. We always welcome very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

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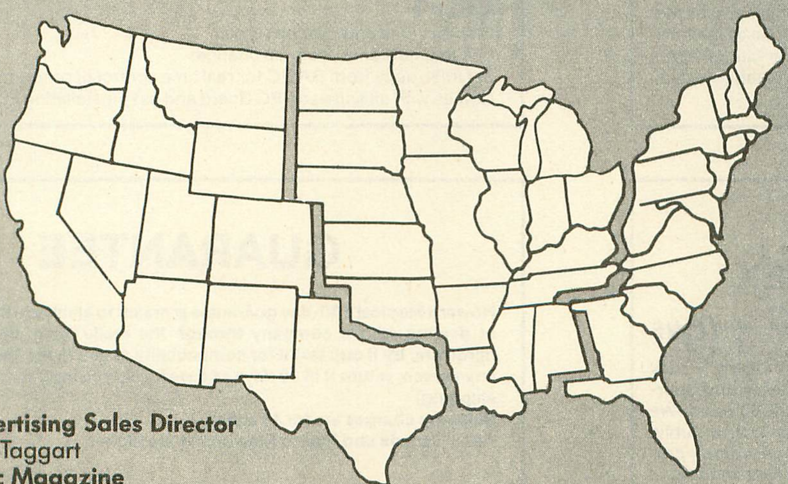
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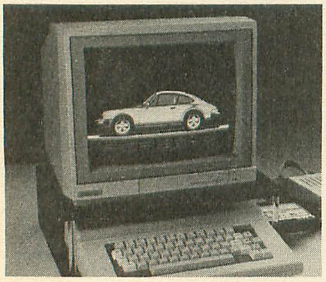
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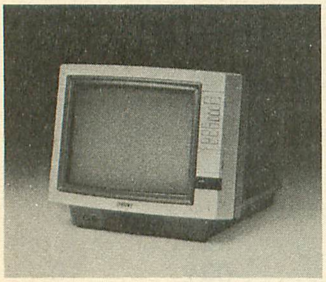
13" Color Monitor 390 x 240 resolution

MONITORS



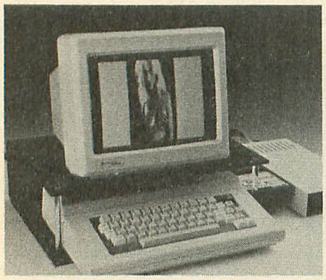
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color
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(14 ship)

3 inputs offer maximum versitility for this 13" color monitor; RGB Analog for the ST; composite for the 800/XL/XE or VCR and RGB TTL for IBM and Clones. The 640 x 240 resolution with .42 MM dot gives vivid colors and a green screen override for 80 column text. ST RGB cable $19.95 with monitor or $29.50 seperate.



SONY
color
KV1311CR $449
(15 ship)

The Ultimate 13" color monitor includes a trinitron TV with remote control; 640 x 240 resolution with a .37 MM dot and a Micro Black screen that is vertically flat for distortion free viewing. Four inputs includes all of those from the Magnavox 515 plus a digital RGB. The colors are incredably brilliant.

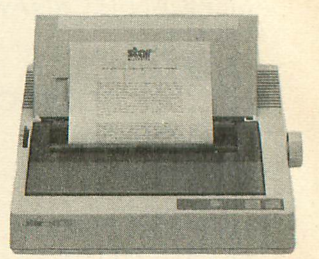


ZENITH
Amber
1220A $98
(7 ship)

This new release from Zenith features a 12" non-glare composite Amber screen with 720 x 240 resolution. The characters are slightly smaller and further apart which increases readability and decrease fatigue about 50%. It is compatable with all Atari computers.

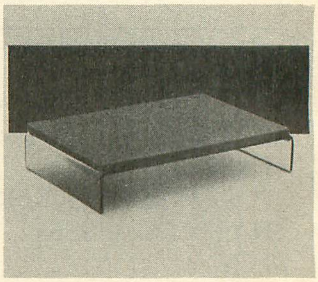
PRINTERS

STAR
NX-10 $155
(7 ship)



Gemini's restyled printer offers a 5K input buffer for faster graphics or print spooling. It features friction feed with auto letter mode for single sheets and back tractor feed that allows the first line of the page or form to be used as well as forward and backward movement of the paper. A front panel gives immediate access to NLQ as well as 8, 96, or 138 characters per line. An Attari printer cable is available for $14.95 from the interface box to the NX-10.

HOWARD
SP-1 $29.45
(3 ship)



Printer stand. Foam covered plexiglass absorbs sound and vibration from the printer and makes an attractive addition to the computer desk. 2 inches of space underneath leave room for 100's of sheets of paper. Cork legs add additional sound dampening as well as mar protection for the table top. Can also be used as a monitor stand to lift the screen above the keyboard. 16W x 11D x 2½H.

MEMORY

256K D RAMS

150 Nanoseconds fits Newell and Rambo Ramdisks
1 Year Warranty
3.85/ea. or 8 for $30

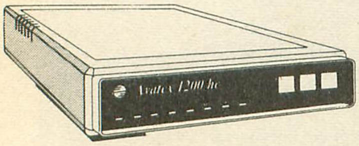
add $2 shipping.

CLOCK CALENDER

CL-1 49.95
(2 ship)

Displays time and date on screen
Use to time stamp program changes
Set interrupps from BASIC for real time control of programs
Comes with all software, PC Board and easy installation instructions.

MODEM



AVATEX
1200 HC 119.95
(2 ship)

This Avatex modem is fully Hayes compatable and operates at 300 or 1200 baud. We include express 3.0, a public domain communications program free with each modem.

GUARANTEE

Howard Medical's 30-day guarantee is meant to eliminate the uncertainty of dealing with a company through the mail. Once you receive our hardware, try it out; test it for compatibility. If you're not happy with it for any reason, return it in 30 days and we'll give you your money back (less shipping)
Shipping charges are for 48 states.
APO, Canada and Puerto Rico orders are higher.

Howard Medical Computers ® 1690 N. Elston, Chicago 60622

Orders: 800-443-1444 Customer Service: 312-278-1440

MasterCard, Visa, American Express, CODs and School POs Accepted

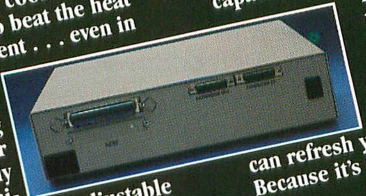


Refresh Your Memory

And Keep Your Cool.

Introducing the ST Hard Drive System from ICD that refreshes your memory better than any other ST hard drive around. *No problem.*

It's the drive that not only looks cool, but stays cool too. All because of a built-in fan that knows exactly how to beat the heat and maintain a calm, cool and collected environment . . . even in your most heated situations. *No sweat.*



And, it's the hard drive that takes a refreshing approach to aesthetic case design as well. See for yourself. It's easy on the space, fitting perfectly under the monitor. And it's easy on the eyes, tailored to look great in the company of your Atari ST. With adjustable front legs, your monitor gets the lift it needs for comfortable viewing. *No strain.*

Despite a sleek and compact exterior, the ICD ST Hard Drive System is packed full of overwhelming enhancements. Like an internal clock that tags each file with up-to-the-minute time and date information. Not to mention expansion capabilities that welcome the connection of up to six SCSI devices and daisy-chaining Atari's DMA Bus (ACSI). It's available in more memory capacities than you can imagine. With storage ranging from 20 megabyte systems up to 280 megabytes. And, there's dual drives too, that double your protection and double your confidence. *No stress.*

So, the next time you think about a hard drive for your Atari ST, think about the countless ways we can refresh your memory. It's the only drive worth remembering. Because it's from ICD. *No wonder.*

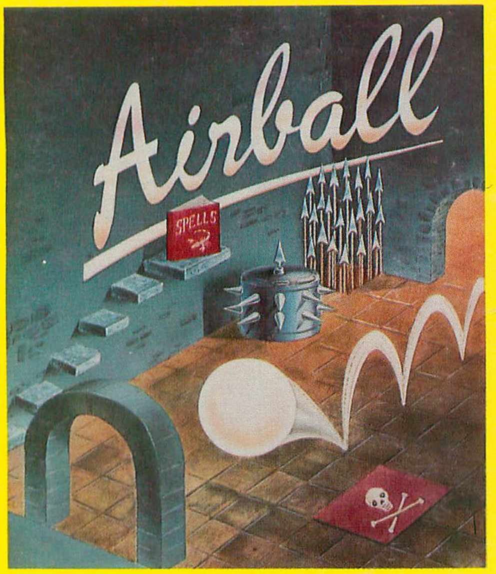
For further product information, please call or write for our catalog today.

ICD

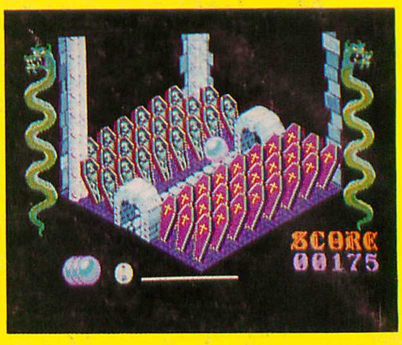
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CIRCLE 056 ON READER SERVICE CARD

Airball



An exciting new game for your Atari ST with *outstanding* graphics!



"Now you're really in trouble," said the Evil Wizard, "I'm turning you into a ball of air and sending you into a mansion with over 250 rooms! If that sounds easy, I'm telling you it's not. Your ball has a slow leak and you'll need to jump on a pump and pump yourself up, but the pumps are hidden in only a few rooms.

Once in the rooms you'll have to pick up objects that have been left behind, such as crosses, tins of beans, a Buddha, and a dragon statue. At the end of the maze is a spell book that will turn you back into a human again. "Sounds easy," you say to the wizard, as he laughs and says, "there is much more in store for you than you realize!"

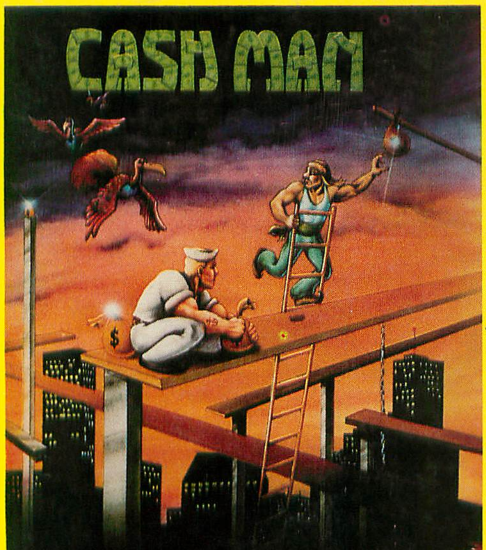
Color only...$39.95

Airball Construction Set

A great addition for your Airball game! You can now make the exciting Airball game even better. With this utility you can build your own rooms for Airball. Make the game just the way you want or try to make a challenge that your friends cannot beat!

Color only...$24.95

Cashman



Dozens of fascinating playing screens with various levels of difficulty, lets anyone have exciting fun while experiencing the Cashman adventure.



Play by yourself or invite the ultimate challenge of simultaneous two player competition. Run along the colorful girders, jump across the tremendous chasms, climb the wobbly ladders, or grab a BYRD and fly to get the loot before your opponent does!

Be careful though, the KATS are on the prowl to stop you, and wrestling with them can be very exhausting. But don't despair, there's more than one way to skin a KAT -- throw eggs, what else! And if your opponent starts grabbing the money from under your nose, just toss an egg his way!

Color only..$29.95

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